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THE EFFECT OF AUDIT EXPERIENCE ON AUDIT FEES – Evidence from the Audit Market of Large Finnish Companies

Master's Thesis
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Abstract

This study investigates the relationship between an audit signee's overall audit experience and audit fees. In contrast with most prior literature, the study uses a measure of the overall experience of auditors to examine this relationship as opposed to measures such as audit tenure or industry specialization. The study is motivated mainly by the dearth of literature on the effects of auditors' personal characteristics on audit work and fees and the opportunity provided by the Finnish regulatory context to examine these issues.

The study uses data from the financial statements of the 500 largest Finnish companies from the fiscal years 2012-2016 to test whether audit fees are positively associated with experience. To this end, three audit fee regression models are constructed with varying definitions of the experience variable. The models are applied to two samples: a sample consisting of all the firm-year observations that fit the initial criteria and a subsample consisting only of audits conducted by the Big Four audit firms.

The results of the study indicate that audit fees are not, overall, positively associated with audit experience, in contrast with expectations based on prior literature. However, significant associations were nonetheless found between experience and fees with two of the three models in both samples. The pattern that emerged from these results suggests that auditors initially gain experience that translates into higher fees during the first years of their careers after authorization, with fees reaching their peak at 6-15 years of experience. However, afterwards there is a statistically significant drop from these peak levels in fees. No sharp drop-off in fees is found for the most experienced auditors (26-40 years of experience) compared with those who have 16-25 years of experience. This pattern is similar in both the full sample as well as the Big Four subsample.

The study thus extends the research on auditors' personal characteristics by providing evidence partly inconsistent with prior literature. Although a positive association is not found, the results indicate that a well-defined experience variable may significantly contribute to audit fee models. Further research is encouraged to establish a better understanding of this relationship.

Keywords overall audit experience, audit fees, audit quality

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Tiivistelmä

Tässä tutkimuksessa tutkitaan tilintarkastajan työkokemuksen yhteyttä tilintarkastuspalkkioihin. Aiemmasta tutkimuskirjallisuudesta poiketen määritellään kokemus tässä niin, että se kattaa tilintarkastajan koko työkokemuksen KHT-auktorisoinnista lähtien. Kirjallisuudessa kokemusta on tätä vastoin yleisemmin käsitelty muun muassa tarkastussuhteen keston tilintarkastajan toimialaosaamiseen kautta. Tutkimusta motivoi tiedon puute tilintarkastajien henkilöön liittyvistä ominaisuuksista sekä niiden vaikutuksista tarkastustyöhön ja niistä saataviin palkkioihin.

Tutkimuksessa käytetty aineisto koostuu 500 suurimman suomalaisen yrityksen (TE500-yritysten) tilinpäätöstiedoista ajanjaksolta 2012-2016, Patentti- ja rekisterihallitukselta saadusta auktorisointidatasta. Aineiston avulla tutkitaan, onko tilintarkastajien työkokemuksen ja tilintarkastuspalkkioiden välillä yhteyttä. Tätä tutkimuskysymystä lähestytään kolmen regressiomallin kautta, joissa tilintarkastajan kokemus –muuttuja on määritelty eri tavoin. Malleja sovelletaan kahteen aineistosta tehtyyn otokseen. Ensimmäinen näistä sisältää kaikki tarkastustoimeksiannot, joiden kohdalta malleihin vaadittava data oli saatavilla. Toinen otos oli tästä laadittu alaotos, johon sisällytettiin kaikki toimeksiannot, joissa jokin neljästä ”Big Four” -tilintarkastusyhteisöstä toimi päävastuullisena tilintarkastajana.

Tutkimuksen tulosten perusteella tilintarkastajan kokemuksella ei näyttäisi olevan yleisesti positiivista vaikutusta tilintarkastuspalkkioihin, vastoin aiemmasta tutkimuskirjallisuudesta johdettuja odotuksia. Tilastollisesti merkitsevä yhteys kokemuksen ja palkkioiden välillä kuitenkin löytyi kahdella mallilla kolmesta molemmissa otoksissa. Saatujen tulosten perusteella kokemuksen karttumisella näyttäisi olevan positiivinen yhteys palkkioihin tilintarkastajan ensimmäisinä kokemusvuosina KHT-auktorisoinnin jälkeen. Palkkiot saavuttavat huippunsa, kun tarkastajalla on kokemusta 6-15 vuotta. Tämän jälkeen palkkiot laskevat tilastollisesti merkitsevästi, joskaan aivan uran lopulla ei havaittu pudotusta palkkioissa enää tästä alemmalle tasolle. Tämä yhteys oli oleellisesti sama sekä pääotoksessa että alaotoksessa.

Tämä tutkimus laajentaa aiempaa tutkimuskirjallisuutta esittämällä aiemmista havainnoista poikkeavaa todistusaineistoa kokemuksen yhteydestä tilintarkastuspalkkioihin. Vaikka hypoteesin mukaista positiivista yhteyttä ei havaittu, puoltavat tutkimustulokset kuitenkin hyvin määriteltyjen kokemusmuuttujien sisällyttämistä tilintarkastuspalkkioita tutkiviin regressiomalleihin. Aihetta on kuitenkin syytä tutkia lisää paremman ymmärryksen saavuttamiseksi.

Avainsanat tilintarkastajan kokemus, tilintarkastuspalkkiot, tilintarkastuksen laatu

TABLE OF CONTENTS

1. INTRODUCTION 1
1.1 BACKGROUND AND MOTIVATION 1
1.2 RESEARCH QUESTIONS 4
1.3 SAMPLE AND METHODS 5
1.4 STRUCTURE 6
2. THE AUDIT PROCESS AND AUDIT FEES 7
2.1 THE OBJECTIVES OF AN AUDIT AND AUDIT QUALITY 7
2.1.1 The Purpose of External Audits 7
2.1.2 Defining Audit Quality 9
2.2 THE AUDIT AS A PROCESS 11
2.3 AUDIT WORK, THE MARKET FOR AUDITS, AND AUDIT FEES 13
2.4 AUDIT QUALITY AND AUDIT FEES 15
2.4.1 The Connection Between Quality and Fees 16
2.4.2 Implications for Studies of Audit Experience and Audit Fees 20
3. THE EFFECT OF AUDIT EXPERIENCE ON AUDIT FEES 21
3.1 AUDIT EXPERIENCE AND AUDIT EXPERTISE 21
3.1.1 Behavioral Research on Audit Experience and Expertise 22
3.1.2 Auditor Tenure and Industry Specialization 27
3.2 CONNECTING AUDIT EXPERIENCE TO AUDIT FEES 30
3.3 THE DETERMINANTS OF AUDIT FEES AND AUDIT FEE MODELS 32
3.3.1 Commonly Used Audit Fee Models 32
3.3.2 The Determinants of Audit Fees 33
3.4 IMPLICATIONS FOR STUDIES OF AUDIT FEES 37
4. RESEARCH DESIGN 38
4.1 HYPOTHESIS DEVELOPMENT 38
4.2 DATA COLLECTION AND SAMPLE 39
4.3. THE AUDIT FEE MODELS 41
5. FINDIGS & DISCUSSION 47
5.1 DESCRIPTIVE STATISTICS & PRELIMINARY ANALYSES 47
5.1.1 Descriptive Statistics 47
5.1.2 Audit Experience, Career Spans, and Fees 49
5.1.3 Audit Experience and Fees 52

5.2 REGRESSION RESULTS AND ANALYSIS 57
5.2.1 Regression Results and the Principles of their Interpretation.....57
5.2.2 Regression Results 60
5.2.3 Discussion.....63
6. SUMMARY AND CONCLUSIONS 66
7. REFERENCES.....69

LIST OF FIGURES

Figure 1 – The Major Phases of an Audit……..12

Figure 2 – The Effect of Audit Experience on Audit Quality and Fees…….....18

Figure 3 – Audit Experience, Expertise, and Monitoring Strength…….....31

Figure 4 – The Age of Auditors at the Time of Authorization……...50

Figure 5 – The Age of Auditors at the Time of the Audit……...51

Figure 6 – Audit Fees and Number of Firm-year Observations by Level of Experience….53

LIST OF EQUATIONS

Equation 1 – Regression model 1. Experience as the natural logarithm of years of experience…….41

Equation 2 – Regression model 2. Experience as the square of years of experience……...45

Equation 3 – Regression model 3. Experience as categorized into four groups……..45

LIST OF TABLES

Table 1 – Sample Sizes……..…41

Table 2 – Descriptive Statistics……..…48

Table 3 – Pearson and Spearman correlations. …….54

Table 4 – Regression Results for the Full Sample…….58

Table 5 – Regression Results for the Big Four Subsample.……...59

1. INTRODUCTION

This study examines the effect of an individual auditor's overall work experience on audit fees in large Finnish companies. A theoretical background is provided through a literature review of research concerning the demand for auditing services, the audit process and its objectives. This is then connected to the existing literature on audit experience and audit fees to establish an understanding of how an auditor's experience may come to affect audit fees. This introductory chapter outlines the background and motivation of this study, the research questions and hypotheses, study design and data as well as the structure of the work.

1.1 BACKGROUND AND MOTIVATION

In recent years the quality of external audits has been under great scrutiny. Since the beginning of the 21st century, regulators have often come up with new laws and regulations aimed at improving the independence of auditors and the quality of audits in order to promote confidence in the financial markets (EC 2017; GAO 2003; ICAEW 2005). The impetus for these developments came largely from major corporate accounting scandals in the beginning of the century, with the financial crisis of 2008 prompting further regulatory action (e.g. EU Regulation 537/2014; The Sarbanes-Oxley Act 2002). As a result, the external auditor has to address an ever-larger amount of issues related to independence, audit documentation and the scope of audit procedures in order to be compliant with the various norms regulating audit work. Consequently, the workload of audit engagements has grown significantly, potentially increasing the costs of conducting an audit and incurring upwards pressure on audit fees charged from clients (Ghosh & Pawlewicz 2009; Raghunandan & Rama 2006).

An external audit is a multi-stage process, during which many costs are incurred. In light of the recent developments in audit regulation and their consequent impacts on the workload of audit engagements, it is therefore of interest to various parties to understand precisely how audit fees are determined. While research on audit fees is plenty (Causholli et al. 2010; Hay 2013; Hay et al. 2006), much of it has focused on client-specific factors and audit firm - specific factors, with less consideration given to the personal characteristics of the auditor (Cahan & Sun 2015; Gul et al. 2013). In addition, a large part of the literature dates back to times during which the audit industry was, overall, subject to far less regulatory pressures and demands. Yet, as Gul et al. (2013) argue, it seems likely that, given the nature of audit work, the personal characteristics of auditors are also relevant for assessing the quality of

the audit. Their evidence obtained from the Chinese audit market lends support for such an assumption. If this is the case, then perhaps audit fees will also vary with experience, mediated by actual or perceived audit quality. Hay et al. (2006) also make the argument that higher fees may follow higher auditor quality, although they refer here to audit firm rather than individual characteristics. If this is so, then it is not far-fetched to suggest that the same might be the case for individual auditors.

While the determinants of fees have received much attention in the literature overall, this is less true of the Finnish audit market. Although the norms governing the auditing profession are largely international, national legislation, the institutional environment and supervision by governmental agencies also play a crucial part in how auditing practice takes shape in its local contexts. It is therefore important also to consider these issues on a national level. Audit fees are subject to regional peculiarities in the regulatory environments, especially as they relate to potential liabilities arising for audit firms from an audit failure (Choi et al. 2008). The various differing characteristics of local audit markets are also not to be ignored. For instance, to what degree is the high-end audit market concentrated? What are the market shares of each Big Four firm (Deloitte, EY, KPMG & PWC) in a given country, and how do their practices differ amongst each other and with respect to smaller competitors? Is there a Big Four premium in audit fees? Are there other competitors who are sufficiently large and reputable to be able to add competitive pressure to the audit market? Such issues are also likely to affect how fees are formed in a given market.

As outlined above, there appears to be a need for obtaining information about the determinants of audit fees on a local level, as generalized theories and evidence gathered in one context may not be fully applicable to another. To the author's knowledge, only one study to date (Niemi 2004) has directly examined the relationship of an auditor's overall experience with audit fees in the Finnish audit market. This study attempts to address this need by providing evidence from the 500 largest Finnish companies (TE500 Companies). The 500 largest companies, in this case, are defined on the basis of revenue. As in most western countries, the Finnish audit market of large companies is largely dominated by the so-called Big Four audit firms (Abidin et al. 2010; EC 2017, p. 7; GAO 2008, p. 15; PRH 2016). Yet, as the Finnish Patent and Registration Office's (2016) market study shows, other firms are also able to compete with the Big Four to some degree, likely at least with regard to the smaller TE500 companies. The scope of this study is therefore not limited to an examination of audit fees within the Big Four.

The fact that the auditor's personal characteristics have received less attention is largely due to the scarcity of publicly available information about the characteristics of individual auditors (Cahan & Sun 2015). As discussed above, the body of research on audit fees in general, however, is very broad. Causholli et al. (2010) and Hay et al. (2006) have noted that more than 180 independent variables had been included in audit fee research in more than 100 published papers. In recent years, further research has doubtless added to these figures. In his meta-analysis, Hay (2013) pointed out that regression models of audit fees tend to explain roughly 70% or more of the variation in audit fees, while also pointing out that these models nonetheless fail to capture some elements of the pricing process of audits. Causholli et al. (2010) further argued that the pricing process of audits includes various interdependent factors affecting its outcome. Thus, there a better understanding of audit pricing and the complex linkages found therein is in order.

DeFond & Francis (2005) noted that some in some countries it is possible to analyze auditors on the level of the individual, as opposed to the previous research that has focused largely on the firm-level, or to a lesser extent, the office-level. The Finnish regulatory context provides a fertile ground for providing further insight into these issues. The Finnish Patent and Registration Office (PRH) maintains a register of all authorized public accountants (*Finnish:* KHT). Each year, PRH publishes the results of the auditor authorization exams. The results indicate the names of those who have passed the exam, if permitted by the examinee, as is usually the case. Additionally, auditing norms applicable in Finland require disclosing the audit signee's name in the audit report (Auditing Act 1141/2015, chapter 3, section 5, subsection 1). This makes it possible to measure an audit report signee's overall audit experience. This opportunity is used to study if audit fees are related to the auditor's overall experience in the Finnish market in order to provide more detailed information on the formation of audit fees.

This question is all the more interesting because, in principle, audit experience could be associated with audit fees through many different pathways, and with effects in either direction. For instance, one might intuitively expect experienced auditors to be able to charge a higher price for their services based on accumulated reputation. One could speculate that it is easier for auditor to establish a strong reputation in a smaller market, such as in Finland. Some studies have suggested that experienced auditors may possess more expertise or perform better in certain auditing tasks (e.g Davis 1996; Libby & Frederick 1990; Yen 2012).

If this is the case, then perhaps the quality of their work is better and they are able to extract a premium.

Alternatively, it is also conceivable that experienced auditors do not produce higher quality audit work. For instance, Knechel et al. (2013) noted that implicit career incentives are weakened by short career horizons. In other words, more experience auditors, who are closer to retirement, may have weaker incentives to produce high quality audits. Additionally, more experienced auditors tend to have larger client portfolios, which Sundgren and Svanström (2014) suggested may negatively influence audit quality, as the auditor is able to expend less time on each assignment. Their evidence also points to a negative association between auditor age and going-concern reporting, potentially lending some credence to the claims of Knechel et al. (2013). Others have found that more experienced auditors may be less skeptical than inexperienced ones (Shaub & Lawrence 2002, cited in Nelson 2009). From a theoretical standpoint, then, the effects of an auditor's overall experience on audit quality and fees do not appear clear-cut.

This study is motivated by the dearth of information on the effects of the personal characteristics of auditors and how they relate to audit quality and fees. The seemingly ambiguous impacts of experience on audit work are worthy of consideration in their own right. The opportunity provided by the Finnish regulatory and supervisory context to investigate these issues also motivates this study. The study seeks to address these questions, first and foremost, in the context of the Finnish audit markets. However, such an examination may still provide valuable insights potentially applicable on a broader level as well.

1.2 RESEARCH QUESTIONS

This study seeks to answer the question of whether the overall audit experience of an individual audit signee is associated with higher fees in the audit market of large Finnish (TE500) companies. Given the complexity of the ways in which experience could influence fees, this is, admittedly, an ambitious goal. However, an attempt will be made to provide a firm theoretical understanding of these issues followed by an empirical investigation to substantiate or refute potential claims drawn from theory. The research question of this study is formulated thusly:

RQ_1: Is the overall audit experience of authorized public accountants associated with higher audit fees in the audit market of large Finnish companies?

Cahan and Sun (2015) observed a positive association between overall experience and fees in the Chinese audit market. A similar result was also noted in a Finnish context by Niemi (2004), though the focus of his study was somewhat different. On the other hand, a negative association was observed by Hardies et al. (2015) in Belgian firms. As discussed above in chapter **1.1**, some previous studies on auditor expertise and task-specific performance suggest that experience may be positively associated with the quality of audit work. Yet, other views have also been presented. Studies that have found auditor tenure and industry specialization to be associated with quality may also imply that some sort of valuable learning takes place in auditors' work. Given the relatively small Finnish audit market, a reputation for quality may be relatively easy for individual auditors to establish. This could facilitate a positive association. Based on these considerations, the hypothesis of Cahan and Sun (2015, p. 84) is therefore replicated, verbatim, with regard to the audit market of Finnish TE500 companies:

H_1: Audit fees are positively associated with signee's audit experience.

1.3 SAMPLE AND METHODS

The study investigates the relationship between audit experience and audit fees to answer **H_1** through ordinary least squares regression (OLS) estimation. The samples selected consist of data gathered on the financials of the 500 Finnish companies with the largest revenues ("TE500 Companies") during 2012-2016. The companies included in the samples are based on the list of the 500 largest companies published yearly by the Finnish finance and business magazine *Talouselämä*. The sample includes data for both listed and non-listed limited liability companies as well as some co-operatives. Data collected by the accounting department of Aalto University are used for the independent variables derived from balance sheets and profit and loss statements, as well as for the audit fees. Data regarding the authorization years of authorized public accountants were also provided by the accounting department and were further augmented by data graciously provided by PRH, the public body responsible for the authorization of auditors in Finland. Two samples are extracted from the data, with one concerning audits by all auditors (2389 firm-year observations), and the other concerning audits conducted by Big Four auditors (2201 observations).

In this study, audit experience is defined on the basis of years elapsed between the end of the fiscal year under audit and the year in which the principal signee of the audit report

(hereafter ‘audit signee’) was authorized as a KHT auditor by PRH. This serves as a measure of the overall experience of the auditor, in contrast with measures related to client or industry specialization, or auditor tenure. Several regression models are constructed with different mathematical definitions of this experience variable in order to obtain a better understanding of the nature of its relationship with audit fees. Audit fees, in turn, are defined as the natural logarithm of fees in euros for the fiscal year to which the audited financial statements relate. Various control variables derived chiefly from balance sheet information as well as profit and loss statement line-items are incorporated into the models based on the findings of previous research and the theoretical investigation conducted herein.

1.4 STRUCTURE

The study comprises six main chapters. After the introduction, chapter two provides an overview of the financial statements audit process and its objectives with a view to audit quality and fees. Chapter three summarizes existing literature relating to audit experience and audit work as well as the construction of audit fee regression models. Chapter four discusses the data and study design in more detail. Chapter five reports the findings of the study. Finally, chapter six summarizes the results and their practical implications and offers some suggestions for potential avenues into future research.

2. THE AUDIT PROCESS AND AUDIT FEES

This section provides an overview of the audit as a process to establish an understanding of what kind of a service is performed when an external audit of financial statements is conducted. The objectives of auditing are examined primarily through the lenses of agency-theory and the norms governing the auditing profession. The audit process is then briefly described in order to establish the basis on which the impacts of audit experience can be evaluated. The formation of audit fees in the audit markets as a function of both supply and demand factors is analyzed thereafter. Finally, audit quality is connected with the objectives of an audit to provide an understanding of how audit quality may mediate an association between audit experience and fees through both reputation and expertise.

2.1 THE OBJECTIVES OF AN AUDIT AND AUDIT QUALITY

2.1.1 The Purpose of External Audits

The nature and scope of a financial statements audit vary across regions depending on the institutional and regulatory context. However, professional organizations have issued accounting and auditing standards, providing some degree of uniformity in the norms of the profession across national borders. In 2006, the European Union adopted directive 2006/43/EC, whose provisions refer to some of the aforementioned standards. Article 26 of the directive stipulates that statutory auditors conduct their work in compliance with the International Standards on Auditing (ISAs). The directive was enacted in Finnish legislation through the Auditing Act (1141/2015, chapter 3, section 3, subsection 1). The provisions of these standards, which contain definitions of an audit and its objectives, are therefore binding on Finnish auditors. Given that the aforementioned EU directive requires the implementation of the ISAs by all EU member states, i.e. they are widely recognized, they form a useful basis for understanding the purpose, scope, and nature of audit work.

According to ISA 200 (IAASB 2018, p. 77), ‘the purpose of an audit is to enhance the degree of confidence of intended users in the financial statements.’ ISA 200 further states that this is done by the auditor communicating their opinion on ‘whether the financial statements are prepared, in all material respects, in accordance with an applicable financial reporting framework.’ (ibid. 2018, p. 77). On a more tangible level this entails, according to IAASB (2018, p. 78), collecting through audit work ‘sufficient appropriate audit evidence about

whether material misstatements exist'. According to ISA 200, then, the auditor is to conduct an audit in which they collect evidence about possible material misstatements, and then communicate the results through an audit report. These definitions of objectives and the methods to achieve them center on ideas of increased trust, confidence, and accountability. As such, they are clearly articulated through the perspective of agency theory.

Central to the agency theory is the principal-agent problem, according to which the interests of the agent may differ from the interests of the principal (Jensen and Meckling 1976). This could result in the agent acting in a way that is not beneficial to the principal. In an auditing context, the problem is that the management is tasked with stewardship of the shareholders' assets, yet the two parties may have conflicting interests. Further exacerbating the problem, there is an asymmetry of information available to the management and owners, with the management generally having more information about the company's finances and operations (Eilifsen et al. 2014, p. 6). This information asymmetry arises from the long-recognized 'separation of ownership and control' in modern corporations (e.g. Berle & Means 1933, pp. 119-120; ICAEW 2005, p. 8). Consequently, the owners may have doubts about the actions of management and the reliability of their reports.

It may be beneficial to both parties to reduce this information asymmetry (Eilifsen et al. 2014, p. 6; Watkins et al. 2004). As Eilifsen et al. (2014) further argue, an unmitigated information risk, that is, the risk that the information is not reliable, might otherwise be factored into the managers' compensation. Thus, the independent auditor is brought in to provide a monitoring service aimed at increasing the credibility of the reports (ICAEW 2005; Watkins et al. 2004). Whittington and Pany (2006, p. 6) make the further point that information risk can arise out of both unintentional misstatements and intentional manipulation of the reports. From the agency theory perspective, then, the audit is not solely meant to prevent deliberate manipulation in the management's reporting.

The principal-agent problem results in so-called agency costs. These are expenses arising from the potential conflicts of interest in this relationship and costs incurred to prevent them. (Jensen & Meckling 1976) Conceptualized through agency theory, audit fees can then be seen as agency costs. DeAngelo (1981a) suggests that among different alternatives, audited financial statements can be a relatively cost-efficient way to reduce agency costs. Based on observations of the various legislative regimes and the widespread adoption of the ISAs and IFRSs across the globe today, this appears to be a prevalent notion.

Stating the objectives of an audit from the perspective of agency theory gives, however, only a limited view of the reasons behind the demand of audit services. Demand arises not just out of a perceived necessity for owners to monitor their agents, but also simply as a product of regulatory requirements of audited financial statements (e.g. the Finnish Auditing Act 1141/2015). This is certainly the case in the Finnish business environment, where even relatively small entities have to procure an auditor's opinion on their financial statements (Niemi 2004). The Auditing Act (1141/2015 chapter 2, section 2, subsection 2) sets out the thresholds for the size of a company's operations that, if exceeded, mandate a statutory audit.

These regulatory requirements are largely due to the fact that financial statements serve various purposes that are not necessarily directly linked to the owners of private companies (e.g. Government proposal HE 70/2016, p. 5, relating to the implementation of EU directive 2014/56/EU in the Finnish legislation). The government proposal outlines several purposes for auditing, including the prevention of black markets, promoting competition and stability of the markets, assurance of the financials of public bodies, among others. Whittington and Pany (2006, p. 7) point out that creditors may require that a company's financial statements are audited as a prerequisite for financing. Additionally, tax authorities may have a keen interest on financial reporting, as audited financial statements serve as the basis for calculating taxable income in many regulatory environments. For instance, the Finnish legal act governing the taxation of business income (1968/360, *Finnish: Laki elinkeinotulon verottamisesta*) has many ties to the applicable accounting legislation.

Clearly, then, the demand for audit services is connected to various different interests. However, common to all of these is the desire for financial reporting that provides relevant, accurate and reliable information about a company's finances, its operations, and its governance. The auditor's role in all of this is, as discussed above, adding credibility to this information. The agency theory perspective therefore provides a useful understanding of what an audit is to achieve, and consequently, what determines the quality of an audit. This is also essential for understanding the fees an auditor is able to charge for their work.

2.1.2 Defining Audit Quality

An examination of the potential connection between audit experience and audit fees entails establishing an understanding of what is meant by the term 'audit quality'. The quality of audits and the definition of quality have been a topic of much debate and research following

the big corporate accounting scandals of the early 21st century, yet no firm consensus has been achieved with respect to the definition of the term (DeFond & Zhang 2014; IAASB 2014, p. 2). Based on the earlier discussion of the objectives of an audit, one might draw the conclusion that a quality audit is simply one that most increases the accuracy and credibility of financial reporting. However, this formulation is somewhat ambiguous especially with regard to the latter characteristic. A particularly influential definition of audit quality by DeAngelo (1981a) sheds some light on this matter:

> *"The quality of audit services is defined to be the market-assessed joint probability that a given auditor will both (a) discover a breach in the client's accounting system, and (b) report the breach." (DeAngelo 1981a, p. 186).*

This definition starts from the subjective assessment of the markets. It also hinges on the auditor's independence, as it is not sufficient for the auditor merely to discover, but also to report detected breaches. According to this definition, the perceived competence and independence, i.e. perceptions regarding the characteristics of the auditor, are the central components of audit quality (Watkins et al. 2004). Yet, prevalent as it is in the literature, this definition hasn't gone entirely without criticism. DeFond and Zhang (2014, pp. 280-281) argue that it reduces the auditor's role into detection and reporting based on mere technical compliance with regulations, and thereby understates the auditor's role in ensuring faithful representation of the firm's finances and operations. They further argue that ensuring faithful representation is also mandated by auditing standards and US Supreme rulings, noting that the auditor is at risk of litigation even when technical compliance with accounting norms is ensured. Additionally, as Tritschler (2014, p. 10) points out, DeAngelo's (1981a) definition does not permit direct measurement of quality, making use of various proxy measurements necessary. The inability to observe audit quality has also been noted by many others (e.g. DeFond & Zhang 2014; Watkins et al 2004; Francis 2004).

Some commentators have proposed assessing audit quality as compliance with auditing norms. Proponents of this view argue that an audit is of high quality when the relevant norms are complied with in conducting the audit (PCAOB 2015, p. 10; Tritschler 2014, p. 10), with some scholars having adopted this approach in their research (e.g. Krishnan & Schauer 2000). Francis (2011) contends that such an approach is also implied by auditing standards. A benefit of this view is that it renders audit quality measurable. Measures that capture deviations from accounting and auditing norms could then be viewed as evidence of audit

quality. This view appears, however, to be even more vulnerable to the same criticisms as DeAngelo's (1981a) definition, as it certainly reduces the concept of quality to the mere technical observation of regulation. The normative view on audit quality does not permit differences in audit quality in cases where the applicable norms are followed and the issued audit report is held constant. This assertion is clearly untenable, at least if the main purpose of an audit is viewed through agency theory as that of enhancing the credibility of the reports and reducing the principals' information risk. Regulation is thus more aptly viewed as an instrumental device towards these ends, rather than as an end *per se*.

2.2 THE AUDIT AS A PROCESS

To understand how an auditor's experience may affect audit fees, one must first look at the audit as a process during which costs are incurred and an auditor's professional judgement is frequently exercised, and expertise applied. The level of assurance provided can therefore be expected to vary depending on the inputs to the process (Francis 2011; Knechel et al. 2009). Causholli et al. (2010) note, however, that many previous studies have treated the level of assurance provided as being a fixed attribute of a given audit firm (e.g. O'Keefe et al. 1994a; Simunic 1980). If audit quality is conceived of as the level of assurance provided, congruent with agency theory and DeAngelo's (1981a) definition, then differential pricing across audit engagements resulting from differences in quality may emerge. It is therefore important to understand the audit as process, as the quality of the inputs into the process may affect audit quality, and consequently, fees.

The scope of an audit, on a regulatory level, is dictated by international auditing standards and national legislation. According to the Finnish Auditing Act (1141/2015 chapter 3, section 1, subsection 1) an audit covers 'the accounting records, the financial statements, and the governance of a corporation or a foundation for the financial year'. An audit conducted in compliance with the Auditing Act (1141/2015) therefore has to entail procedures directed at each of the aforementioned objects.

From a technical perspective, an audit of financial statements can be described as a process in which the auditor gathers evidence regarding the management assertions presented in the financial statements in order to issue an audit report on whether the financial statements are presented in accordance with predetermined criteria (Eilifsen et al. 2014, p. 12; Whittington & Pany 2006, pp. 5-6). 'Management assertions' here refer to the implied or stated claims

about the correctness of the information in the financial statements. The 'predetermined criteria' refer to any legislation and other norms that constitute the applicable financial reporting framework. This process leads to the audit report that accompanies the financial statements, which communicates the auditor's opinion of the correspondence between management assertions and the predetermined criteria (Eilifsen et al. 2014, p. 13; Whittington & Pany 2006, p. 5; IAASB 2018, p. 79). Implicit or explicit within the auditor's report is that the auditor has obtained a reasonable level of assurance to base their opinion on. A reasonable level of assurance is, according to IAASB (2018, pp. 78 & 82), 'a high but not absolute' level of assurance. Worth noting again is that the level of assurance is not directly measurable, and that it may therefore vary between engagements, even with the resulting audit opinion held constant.

The goal of an audit, according to agency theory, is then to enhance confidence in the financial statements by reducing information risk. Audit work therefore consists largely of various procedures aimed at obtaining audit evidence regarding management assertions so that the auditor can ultimately express an opinion on the financial statements (Eilifsen et al 2014, p. 19). However, the audit process also entails many other stages before the auditor can start gathering evidence. Ibid. (2014, p. 18) divide the audit process into seven major phases, as illustrated below in figure 1.

Figure 1 – The Major Phases of an Audit. Adapted from Eilifsen et al. (2014, p. 18).

As can be seen from Figure 1, the audit process includes several steps where an auditor's expertise could have a considerable effect on the outcome. Causholli and Knechel (2012, p. 631) further boil audit work down to two activities: risk assessment as well as planning and executing audit procedures. These two activities play a crucial part in all of the steps outlined by Eilifsen et al. (2014). Beginning from client acceptance/continuance, the auditor has to assess the client's risk profile, as this in turn influences the auditor's risks. Further steps include obtaining an understanding of the business, the client's internal controls as well as the business environment the client operates in so as to plan effective audit procedures. (Whittington & Pany 2006, p. 127-128) The scope of the audit therefore relies heavily on the decisions made in the initial stages of the audit. After planning, the auditor executes

procedures to obtain evidence regarding the assertions in the financial statements. (Causholli & Knechel 2012) The audit is then completed, which entails the determination of whether the collected evidence is sufficient and appropriate. Finally, the auditor forms their opinion and decides upon what kind of an audit report to issue. (Whittington & Pany 2006, p. 6)

As discussed above, the auditor's professional judgement enters into many decisions taken during an audit, which may affect the resultant quality of the audit. Causholli and Knechel (2012) argue that the audit's scope is ultimately decided through the auditor's professional judgement, while noting the complexity of this task. Francis (2011) also asserts that quality depends on the inputs of the process, that is, the competence and independence of the audit team as well as the appropriate use and evaluation of testing procedures, throughout the audit. Thus, it seems likely that an auditor's expertise, accumulated through experience, plays a part in the execution of the process, as well as the outcome, i.e. the level of assurance achieved. Consequently, this might lead to observable effects in audit fees if clients are willing to pay for higher audit quality.

2.3 AUDIT WORK, THE MARKET FOR AUDITS, AND AUDIT FEES

The various factors influencing audit quality and audit fees can be broadly divided into production (supply) and demand factors (Causholli et al. 2010; DeFond & Zhang 2014). As Causholli et al. (2010) note, audit fees reflect, in part, the cost of delivering audit services. A brief overview of the supply and demand factors affecting audit pricing is therefore provided.

As discussed in chapter **2.2**, an audit engagement is, as a production function, a multi-stage process that entails the expenditure of time and effort by the auditors. Simunic (1980, p. 161) broadly described audit fees as 'the product of unit price and the quantity of audit services demanded by the management of the audited company'. Causholli et al. (2010) further point out that the main costs of an audit are labor costs. In addition, the auditor may of course utilize other resources, such as technological tools in their work.

The process cost of an audit engagement is therefore highly dependent on how the various stages of the audit are executed and how much labor is used therein. In line with Simunic (1980) and Causholli et al. (2010), Knechel et al. (2009) argue that the efficiency of audit work may be expected to affect audit quality. On a similar note, it seems likely that efficient auditors could alternatively provide the same degree of assurance but at a lower cost, perhaps

passing some of these savings onto the client. For instance, Bills et al. (2015) studied the impacts of auditor industry specialization on audit fees, and found specialists to charge lower fees without compromising quality, suggesting that cost-efficiencies were passed onto the clients to establish a competitive edge.

Yet, the determination fees cannot solely rest on factors related to the production of audit services. Causholli et al. (2010) asserted that previous research on audit production has been scarce compared to the literature on fees due to the limited availability of data regarding production inputs, i.e. labor hours. Knechel and Willekens (2006) further argued that fees had been treated as by-product of production, while neglecting the demand side. In either case, audit fees are likely to also be influenced by factors relating to demand (Defond & Zhang 2014).

The basic principles of the demand for audit services were outlined previously in chapter **2.1** through agency theory. However, audit fees are also related to market conditions as well as the characteristics of the client (Causholli et al. 2010), which may influence demand. For instance, Knechel and Willekens (2006) investigated the drivers of the demand for audit services in listed companies in Belgium. They concluded that demand drivers relating to the internal controls, risk management practices, and corporate governance of the client were positively associated with fees. The characteristics of a particular auditee's demand for auditing may thus influence audit pricing.

Additionally, market conditions are also likely to affect the determination of prices. The audit markets for large enterprises tend to be highly concentrated in developed economies (e.g. Abidin et al. 2010; GAO 2008; GAO 2003; PRH 2016). As such, some have expressed doubts about whether this has resulted in oligopolistic pricing among the Big Four auditors. Yet, the evidence does not seem to support such a conclusion (Abidin et al. 2010; GAO 2008). In the EU, mandatory audit firm rotation imposed by Regulation (EU) No 537/2014 may also have some effects on audit pricing. For instance, it has been proposed by some scholars as well as audit firms that such rotation rules result in increased costs as the new auditor has to familiarize themselves with the client (e.g. DeAngelo 1981b; KPMG 2017; Kwon et al. 2014). Additionally, many researches have noted a so called 'low balling' phenomenon in the first years of an audit, where auditors provide audits at a lower price for competitive reasons (e.g. DeAngelo 1981b; Fung et al. 2012; Huang et al. 2015; Kwon et al. 2014; Simon & Francis 1988). Consequently, market conditions can impact audit fees in

many ways that are not necessarily related directly to the auditor's production capabilities or even the client's attributes.

The production and demand factors also appear to be interrelated to an important degree (DeFond & Zhang 2014). As the study of Knechel and Willekens (2006) illustrates, these demand factors ultimately influence what precisely is produced by the auditor. Prior studies also indicate that auditor effort, measured in hours of labor, is affected by client characteristics, although the evidence is mixed with respect to some characteristics (Causholli et al. 2010). It therefore appears that the characteristics of clients may result in differences in both audit hour and fees.

Audit fees, then, are determined on the markets based on factors relating to both the production of audit services and the demand thereof. These factors may be mutually interdependent. Audit efficiency may affect fees, as the level of assurance achieved is likely tied to the amount of assurance an auditor can provide per unit of labor. Additionally, it may be the case that efficiency produces cost savings that could be passed onto the audit clients. If audit experience is linked to audit efficiency, for instance through expertise and professional judgement, an auditor's overall experience may therefore impact audit fees through production costs. A further investigation of the relationship between audit fees and quality is therefore conducted in the next section, with a view to how they may be linked to the audit experience of individual auditors.

2.4 AUDIT QUALITY AND AUDIT FEES

The relationship between quality and fees appears to be complex. Fees are often used as a proxy measurement for audit quality, as prior tends to support to such an approach (DeFond & Zhang 2014; Francis 2004). The intuitive logic behind this approach is quite simple. As Francis (2004, p. 352) puts it, a higher price may imply greater auditor expertise or greater effort. Since audit quality can logically be expected to be one of the main factors mediating any potential association between the signee's overall experience and audit fees, an examination of the relationship between quality and fees is warranted as one of the two links in the suggested causal chain.

2.4.1 The Connection Between Quality and Fees

Because of the measurement difficulties entailed by DeAngelo's (1981a) definition of audit quality, various divergent views on how audit quality is to be measured have emerged (for an overview of common audit quality models, see DeFond and Zhang's [2014] comprehensive literature review). This also complicates investigations of the relationship between an auditor's experience and audit fees.

Convincingly establishing a causal relationship between experience and fees through audit quality faces several difficulties: First, this would require that quality is actually measurable in a sufficiently objective manner, and second, that a non-spurious association between experience and quality is established, and finally, that market perceptions of quality reflect actual quality. Thus, previously conducted studies on auditor industry specialization or behavioral research on the effects of an auditor's experience on task-specific performance cannot be taken directly to imply that higher levels of experience cause higher audit fees through better quality.

In spite of these issues, audit fees are often understood as implying higher audit quality (DeFond & Zhang 2014; Francis 2004; Hay 2013). As discussed earlier in chapter **2.1.2**, using proxy measures is inevitable if DeAngelo's (1981a) definition is accepted, as is often the case in audit literature. However, fees may also reflect factors not captured by certain proxies of quality that start from the assumption that higher financial reporting quality follows from higher audit quality.

Watkins et al. (2004) argue that perceived quality and the auditor's actual 'monitoring strength' aren't always matched. Thus, it is conceivable that the auditor's reputation influences fees, even if their reputation is not aligned with their monitoring strength. Such a delineation between perceptions and actual quality has also been suggested by others (e.g. Lowensohn et al. 2007; Ghosh & Moon 2005). However, Watkins et al. (2004) also note that perceptions of quality and actual monitoring strength should ultimately converge 'as information is revealed'. They illustrate this by pointing to the downfall of Arthur Andersen LLP, where a reputable auditor delivered low quality, the discovery of which ultimately precipitated their demise. Watkins et al. (2014), however, make the caveat that further research into this relationship is still necessary, while also calling for a definition of quality that takes into account the differences between actual quality and perceptions of it.

Watkins et al. (2004) conceive an auditor's reputation as a characteristic of the *firm*, which serves to enhance perceptions of the credibility of financial reports. Perhaps, then, the same might be true of individual audit signees, at least in smaller markets where an individual reputation might be easier to establish. In a related vein, Francis (2004) also argued that public perceptions of audit quality seemed, at the time, to be impaired due to suspicions about the effects of providing non-audit services to audit clients, even as the actual quality of audits was by many measures quite high. Thus, a discrepancy may also be suggested on a more general level. This, however, seems unlikely to have any causal effect on the fees obtained from individual audit engagements.

If the arguments regarding the convergence presented by Watkins et al. (2004) hold true, the case for audit fees as a proxy for quality would be strengthened, regardless of how audit quality is ultimately defined. If market perceptions of quality and monitoring strength were to fully converge, then audit fees would likely reflect both of these aspects of quality. This convergence might also lead to convergence between the auditor's reputation for quality as well as their actual independence and competence, that is, convergence between the *characteristics* of the *auditor* (see Figure 2 below). However, these arguments cannot be accepted without reservations. For instance, perhaps minor discrepancies may go undiscovered. The regulatory and supervisory context may also affect the likelihood of discovery. The calls for further research on this topic by Lowensohn et al. (2007) and Watkins et al. (2004) must therefore be echoed here.

In spite of such questions, the argument for converge does seem to have some merit, at least with regard to major discrepancies, as illuminated by Andersen's downfall. It further seems likely that there is some degree of information flow between those personally involved in the auditing process and the stakeholders of the client. Such information could notify the purchasers of audit services of potential deficiencies in audit quality. Thus, it is proposed here that market perceptions of audit quality are highly correlated with commonly used measures of monitoring strength, such as discretionary accruals. Assuming that market perceptions of quality and monitoring strength are closely related, Figure 2 summarizes the potential relationship between audit experience and audit fees, based in part on the framework of quality proposed by Watkins et al. (2004, p. 157).

Figure 2 – The Effect of Audit Experience on Audit Quality and Fees

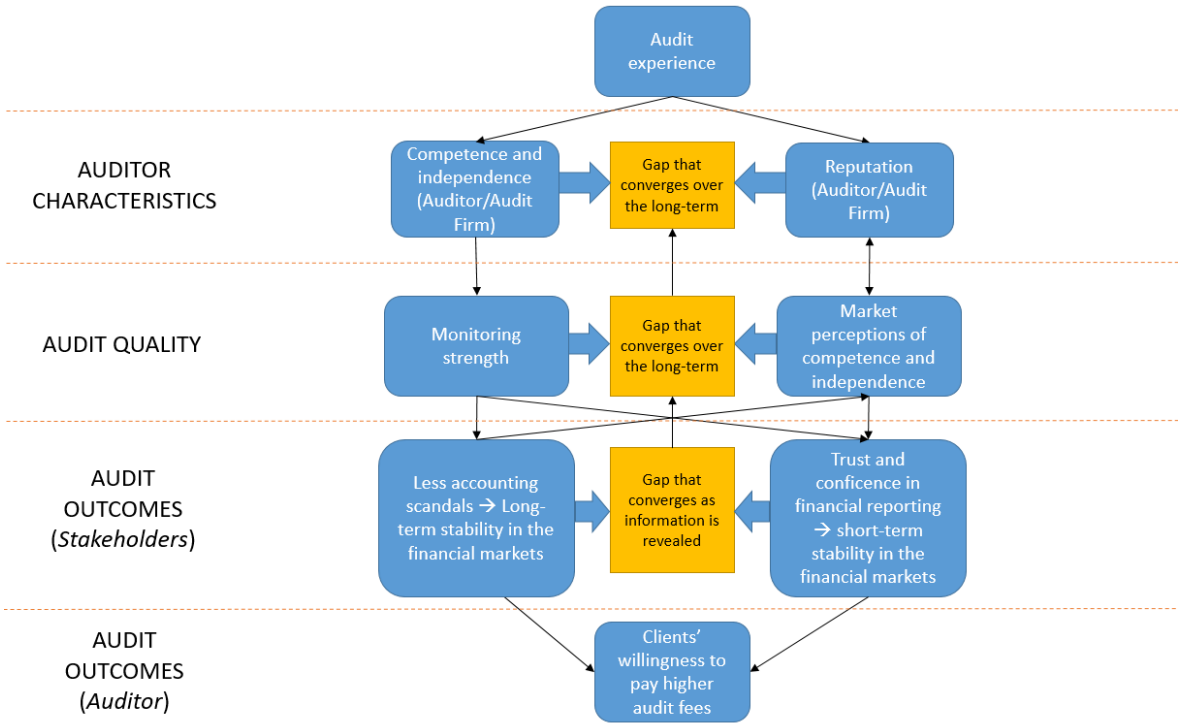


Figure 2 clarifies the pathways through which an auditor's experience may affect audit quality and consequently audit fees via both reputation as well as actual competence and independence. The figure also illustrates how these effects may be different for the stakeholders of the auditee as well as the auditor depending on whether the effect is mediated by reputation or actual competence and independence. Additionally, the figure depicts how positive stakeholder outcomes influence market perceptions and thereby the auditor's reputation. Further worth noting here is that both monitoring strength and perceived quality affect audit fees, with differential fees potentially arising depending on the specific pathway thorough which experience affects quality.

As Watkins et al. (2004) argued, this gap between monitoring strength and perceptions thereof may converge over the long term as information regarding audit outcomes comes to light. It is also proposed here that this convergence will then be related to the auditors, with the result that their reputation will increasingly match their competence and independence over time. Unlike Watkins et al. (2004), these pathways are argued to relate to both individual auditors as well as audit firms. In a smaller market with less auditors, such an effect might be more pronounced, as an individual reputation may be easier to establish. However, it should be noted that it is logically impossible for information regarding audit

engagements to be immediately reflected in market perceptions. Consequently, some discrepancy should always remain.

The outcomes of an audit, illustrated in Figure 2, have to be evaluated with a view to the purposes of an external audit. The purpose of the audit, from the perspective of agency theory, is to reduce the information risk that arises from the principal-agent relationship. Information risk was defined in chapter **2.1** as the risk that the principal bases their decisions on information that is not reliable, based on the characterization of Eilifsen et al. (2014, p. 6). If audit quality is perceived as being high while actual monitoring strength is low, the risk that decisions are made on bad information is evident. Whether audit experience relates merely to perceptions of quality or actual monitoring strength may therefore be important to differentiate as inquiries are made into the relationship between experience and fees.

Despite this ambiguity in defining audit quality, several studies have found various measures of quality, relating to either reputational factors or more directly to monitoring strength, to be associated with higher fees. For instance, Choi et al. (2010) found audit firm office size to be positively associated with higher audit quality, as measured by abnormal accruals, and audit fees, suggesting that larger offices provide higher quality and obtain a premium for it. Dao et al. (2012) found that companies in which auditor selection requires shareholder ratification have higher audit fees and lower abnormal accruals as well as a lower likelihood of restatements. An earlier study by Choi et al. (2008, pp. 88-93) found a significant ($p< 0.01$) Big Four price premium with all of the several variants of their regression model. They also found some 'preliminary evidence' that the Big Four auditors expend more effort as measured by labor hours, suggesting that this increased effort is factored into their audit fees. Francis et al. (2005) and Fung et al. (2012) studied audit fees in the U.S. audit market and found their measures of audit firm industry specialization, which implies higher quality, to be associated with higher fees. In the Finnish audit market, Niemi (2004) found evidence of higher fees for auditors who had more overall experience, higher level of auditor certification, level of education and audit firm size among smaller auditors. As a whole, then, the literature appears to suggest that audit clients do indeed place financial value on higher audit quality.

2.4.2 Implications for Studies of Audit Experience and Audit Fees

Bearing in mind the limitations laid out above, DeAngelo's (1981a) view on audit quality serves as the foundation for understanding audit quality in this study. Yet, the distinction between perceived quality and monitoring strength made by Watkins et al. (2004) and others seems highly relevant for an investigation of audit experience and audit fees. An individual auditor's experience may be correlated with both their expertise and their reputation in the audit market. As discussed above, reputation relates more directly to perceptions of quality rather than actual monitoring strength. Therefore, if an individual auditor's reputation is causally linked to higher audit fees, audit fees as a proxy for quality may provide less insight into the auditor's actual monitoring strength. Regardless, market perceptions of quality are important *per se*. As the U.S. Securities and Exchange Commission (SEC 2000) has noted, perceptions of quality increase investor confidence. The same view is also evident in IESBA's (2018, p. 29) ethical standards' definition of the term 'independence in appearance'.

Adopting DeAngelo's (1981a) market-based view on quality allows for an investigation of the relationship between experience and fees, which bypasses the problem of relating experience to either perceived quality or monitoring strength. Audit fees are determined on the markets, and thus likely based largely on *perceptions* of quality. As discussed previously, these perceptions are likely to be affected by actual monitoring strength via positive outcomes for stakeholders and information flow between auditors and their clients. Such an approach, however, imposes a crucial limitation for the study: the regression models estimated in this study cannot firmly substantiate any causal claims made regarding the impacts of audit experience on quality, if it is conceived of as monitoring strength. Disentangling the effects of monitoring strength and perceived quality thus appears to be a crucial, yet challenging, task for fully understanding the formation of audit fees.

In spite of these limitations, such an empirical investigation as is conducted in this study may still be useful, as long as the results are interpreted with care. At the very least, evidence of a potential association between experience and fees may be suggestive of whether experience affects audit quality. Additionally, an association with fees is important in its own right. However, the design of the study does not allow for the disentanglement of factors relating to reputation and actual monitoring strength. A theory-based investigation of audit experience and its potential effects on audit work is thus conducted in the following section.

3. THE EFFECT OF AUDIT EXPERIENCE ON AUDIT FEES

An examination of the effect of audit experience on audit fees entails connecting the potential effects of audit experience to the quality of audit work. As discussed in chapter **2**, market perceptions of quality are likely to be connected with auditor monitoring strength to a high degree. Therefore, it may be proposed that the manner in which the experience of an individual audit signee affects their work may have an impact on monitoring strength, and consequently on market perceptions of quality as well as audit fees. However, relatively little research has been conducted on how the personal characteristics of an auditor may affect quality (Cahan & Sun 2015; Garcia-Blandon & Argiles-Bosch 2018; Gul et al. 2013). As Cahan and Sun (2015) note, this is especially true of archival research on the effects of the experience of an individual auditor. Furthermore, research directly examining the effects of an individual audit signee's reputation on perceived quality and fees appears to be scarce or non-existent. An examination of experience as it relates to audit quality through actual monitoring strength will therefore have to suffice here.

In the following, an overview of existing literature concerning audit experience, expertise, and their impacts on the different stages of the audit process is provided. Afterwards, some propositions based on this research are made in order to conceptualize the potential connections between experience and audit fees. Finally, some of the models used to estimate audit fees in previous literature are examined, and a brief summary of the practical implications of the examinations conducted here is provided.

3.1 AUDIT EXPERIENCE AND AUDIT EXPERTISE

Audit experience has been conceptualized in various different ways. Many have studied the impacts of partner tenure in a given engagement (e.g. Bedard & Johnstone 2010; Chi et al. 2009; Ghosh & Moon 2005; Manry et al. 2008) or audit firm engagement tenure (Carcello & Nagy 2004; Chen et al. 2008; Gul et al. 2009) to understand how the auditor's relationship with the client may affect the audit's outcomes.

Additionally, the effects of the auditor's specialization have also been a topic of much interest (e.g. Knechel et al. 2007; Low 2004; Reichelt & Wang 2010; Zerni 2012). These studies have focused largely on the expertise provided by specializing in an industry or a client, at the levels of the individual auditor, audit firm, and the office versus national-level specialization within an audit firm. Insofar as expertise is connected with experience, such

studies may provide valuable insights into how an auditor's experience may affect audit work.

A third stream of research has consisted of behavioral studies examining the effects of audit experience on performance in certain tasks often encountered in the audit process (e.g. Abdolmohammadi & Wright 1987; Bonner & Lewis 1990; Davis 1996; Libby & Frederick 1990; Moeckel 1990). Although studies of audit signee or audit firm tenure have also sought to address issues of independence, among other things, a commonality to all of these bodies of research is that they are concerned with how an auditor's expertise may impact the outcomes of an audit. However, none of these are directly concerned with how an auditor's overall experience may influence audit quality or fees on the level of a whole audit engagement.

Yet, some insight into the potential effects audit experience may have on quality and fees might still be gained through these bodies of research. Thus, an overview of prior research on the impacts of experience on audit work is provided here, with particular attention given to the behavioral studies, as they most directly relate to the objectives of this study. The connections between experience, industry specialization, auditor tenure, audit quality and fees are also considered.

3.1.1 Behavioral Research on Audit Experience and Expertise

Many studies have investigated the impacts of audit experience on specific tasks that relate to the audit process, although most of them date back to the 1980's and 1990's. These studies have focused on topics such as audit judgements with and task complexity (Abdolmohammadi & Wright 1987), information selection (Davis 1996), assessments of audit findings (Libby & Frederick 1990) and knowledge of error frequencies and error causes (Ashton 1991), and memory errors (Moeckel 1990). Most of the aforementioned studies found either mixed results or positive associations with experience and performance on the task of interest. Yet, as Bonner and Lewis (1990) noted, the link between experience and expertise is not unequivocal.

Several different audit tasks to which expertise might relate have been identified. Bonner and Lewis (1990) pointed out the need to analyze expertise on a level that goes deeper than general knowledge of the domain in question, as they argued that more specific knowledge is likely to vary across auditors with a given amount of experience. To this end, they (Ibid.,

pp. 3-6) identified three types of knowledge relevant for auditor expertise: (1) general domain knowledge, (2) subspecialty knowledge of clients or industries, and (3) general business knowledge. They also noted that, as a prerequisite for expertise, the auditor has to possess some innate general problem-solving ability. Their research setting utilized four tasks intended to measure different types of knowledge and ability. These tasks were related to (1) identifying errors resulting from deficient internal controls, (2) analysis of the causes of deviant financial ratios, (3) identifying earnings manipulation, and (4) identifying interest-rate swaps and knowledge of their accounting treatment. In their experiment experience was observed to have a positive association with performance. However, they argued that the evidence also suggested that knowledge and innate ability may be better predictors of performance than experience.

Consequently, Bonner and Lewis (1990) conclude that experience as a measure of expertise is problematic in that it doesn't allow examination of differences among auditors with a given level of experience. As this study is focused on the effects of experience on a general level, this does not present a major problem. Furthermore, Marchant (1990) presented criticisms of Bonner and Lewis' (1990) propositions regarding the definition of expertise as well as the methods and conclusions of their study. He argued that their definition does not address the question of how superior task-specific performance is achieved, pointing to the fact that experience facilitates acquiring knowledge, and that it is therefore not surprising to observe lower explanatory power for experience if knowledge is factored into the model separately.

Marchant's (1990) arguments are consistent with the findings of Libby and Tan (1994), who extended work of Bonner and Lewis as well as Libby & Luft (1993, cited in Libby & Tan 1994) by developing the framework and running additional tests on Bonner and Lewis' (1990) data. Libby and Tan (1994) concluded that experience had a direct impact only on performance on structured tasks, but that experience also had an impact on the development of knowledge relevant to performance on each of the four tasks. Even so, the classification of the three types of knowledge presented by Bonner and Lewis (1990) may prove useful in understanding the potential impacts of experience, as all three types seem likely to be connected with overall experience, albeit in different ways. Overall, Bonner and Lewis' (1990) and Libby and Tan's (1994) studies give some support to the proposition that overall experience increases performance on specific tasks, whether directly, or mediated by knowledge acquisition.

Other studies have mainly focused on one or two specific tasks, while refraining from drawing such general conclusions as Bonner and Lewis (1990). Abdolmohammadi and Wright (1987) studied whether experience affects decision-making in tasks of varying degrees of complexity. They found experience to be positively associated with performance in unstructured and semi-structured tasks, i.e., tasks of medium or high degree of complexity.

Davis (1996), on the other hand, studied the impacts of knowledge afforded by situational experience through an examination of control-risk assessments made by auditors with varying amounts of experience in the Big Six audit firms. He found that experienced seniors were better at selecting relevant information and made faster and more consistent control risk assessments, but that their judgements were not more accurate than those of new seniors. His results therefore suggest that more experienced auditors may be more efficient, if not effective, in judging the client's internal controls.

Hypothesizing that experienced auditors are more likely to detect and more efficient in detecting as well as evaluating financial statements errors, Libby and Frederick (1990) conducted an experiment comparing audit managers, audit staff and auditing students. They interpreted their evidence as pointing to experienced auditors having a broader knowledge of potential errors and better assessments of their frequency as well as a better ability to identify related errors within the same transaction-cycle due to more developed knowledge structures. With respect to knowledge of error frequency, Kaplan et al. (1992), however, found differences relating to experience only when managers were grouped together with seniors and students were grouped together with associates, but no differences when analyzed as individual groups corresponding to these ranks. Their evidence can be interpreted as providing only weak support for experience-related gains in knowledge of error frequencies.

Ashton (1991) extended the studies on error evaluations by examining auditors' knowledge of the frequencies of potential errors in financial statements and knowledge of their causes as well as effects. In line with Kaplan et al. (1992), she did not find experience to be strongly associated with more accurate assessments of error frequencies. She proposed that a likely explanation for these results was that errors in the financial statements were, in general, rare and that auditors therefore had little experience of them. Additionally, the evidence suggested at best a weak positive association for the number of the auditor's clients in an industry, and at worst, a negative correlation for an auditor's months of experience with

respect to accuracy in assessments of error causes and error effects. Ashton (1991) therefore concluded, in accordance with Bonner and Lewis (1990), that experience of specific audit tasks is likely a better measure of expertise than overall experience. However, it is worth pointing out again, that overall experience is of course likely to be associated with experience of any given audit task, thereby facilitating the acquisition of task-specific expertise (Libby & Tan 1994; Marchant 1990). In addition, the sample sizes in Ashton's (1991) study cannot be considered sufficiently large to draw definite conclusions. The evidence obtained by Ashton, however, do cast some doubts on validity of Libby and Frederick 's (1990) results. On the other hand, a more recent study by Yen (2012) studied the judgements made by staff-level auditors of varying amounts of experience in analytical review tasks. He found that staff-level auditors were more able to generate alternative explanations of analytical review findings than auditing students. Taken as a whole, the evidence regarding error-rate knowledge of experienced auditors therefore has to be considered mixed.

Moeckel (1990) studied the effects of experience on memory errors made by auditors classified into four levels of experience, from assistant to manger. She found that (1) experienced auditors are less likely to *fail to integrate*, that is, make connections between different pieces of information, and (2) that experienced auditors were more likely to alter (*reconstruct*) their mental representations of information in order to better fit it to previously existing memories. She further argued that the experienced auditors' reconstruction of mental representations may result in failures to integrate as well as inability to detect such failures made by their subordinates, thus potentially offsetting the benefits of better integration. Consequently, Moeckel's evidence also has to be considered mixed with regard to the effects of experience on the performance of audit work.

Few studies have studied more specifically how learning might occur over time in an auditing context. However, as suggested by the framework of Libby and Tan (1994), Bonner and Walker (1994) studied the acquisition of knowledge as one of the determinants of performance. They found that practice combined with explanatory feedback or instruction relating to understanding rules beforehand improves acquisition of task-specific knowledge that translates to higher performance in ratio analysis tasks. However, if any of these conditions were violated, knowledge was not acquired. Additionally, they found that general ability facilitated knowledge acquisition. Their results can be taken to lend support for some degree of knowledge acquisition through experience in auditing. Yet, as Bonner and Walker

(1994) point out, outcome feedback may often be unavailable in the auditing environment, thus weakening such an assumption.

Shaub and Lawrence (2002, as cited in Nelson 2009) studied the connection between experience and an auditor's professional skepticism among Big Five auditors in fraud-assessment tasks. They found the most skeptic auditors to be those with the least experience, suggesting that skepticism declines with experience. This is problematic for audit quality, as exercising professional skepticism is considered an integral part of auditor independence (IESBA 2018, p. 29-31). Nelson (2009) noted that Shaub and Lawrence's findings were consistent with previous studies which suggested that experienced auditors are more likely to ascribe non-error explanations to potential misstatements. For instance, Kaplan et al. (1992) found that when auditors were given a list of potential explanations in an analytical review ratio analysis task, more experienced auditors were likelier to attribute the variances to environmental explanations rather than errors in the financial statements. Yet, Shaub and Lawrence (2002, cited in Nelson 2009) argue that excessive skepticism may also be harmful in that it might reduce efficiency if it prompts unwarranted action. The question then becomes whether the experienced auditors' lesser skepticism is warranted due to concerns of efficiency or does this compromise their ability to provide high quality audits. Here too it must be concluded that experience may have an equivocal relationship with audit quality.

Owhoso et al. (2002) studied error detection by senior auditors and managers in industry-specialized teams and non-specialized teams. They further divided these teams into nominal teams, where seniors and managers worked alone and their error detection results were combined, and real teams, where seniors and managers worked together through a sequential review process. They found managers to be more likely to identify conceptual errors and seniors more likely to identify mechanical errors, within real industry-specialized teams. This was also true of specialized managers and seniors working individually. Non-specialized seniors and managers, however, were significantly worse at both tasks, and the differences between managers and seniors were reduced as compared with specialized teams. Their findings lend further support to Ashton (1991) as well as Bonner and Lewis (1990), who suggested that more specific experience, rather than overall experience, may be important for audit performance.

To summarize, previous research has found an auditor's experience to be positively associated with performance on some audit related tasks whereas mixed or contrary evidence

has been presented with regard to others. As noted by Bonner and Lewis (1990), the link between experience and expertise does not appear to be a direct one in all cases. Thus, experience relating to more specific tasks may be a better predictor of expertise, as also suggested by the findings of Ashton (1991) and Owhoso et al. (2002). Yet, as experience facilitates the acquisition of more specific knowledge (Libby & Tan 1994; Marchant 1990), the overall experience of an auditor may serve as a useful proxy for expertise. As this study is chiefly concerned with the overall experience of auditors, whether it impacts performance directly or indirectly is not of high importance. Taken as a whole, the evidence appears to lean slightly toward experience having more positive effects on audit work, and thereby audit quality, in the form of actual monitoring strength. Recent research on this subject is, however, scarce. Bédard and Chi (1993) noted that expertise in auditing is poorly understood. Given the dearth of behavioral research in recent years, it appears justified to state that the state of affairs hasn't changed much since. In addition, the many changes and regulatory requirements that have been brought to bear on the profession in the last 20-30 years may have had profound impacts on the specific mix of tasks that auditors of various levels of experience perform. The results obtained in these behavioral studies therefore have to be interpreted as merely suggestive.

3.1.2 Auditor Tenure and Industry Specialization

Studies on auditor tenure and industry specialization may provide further insight into how audit experience may come to facilitate higher quality. Analyses have been conducted on the level of the individual auditor as well as the audit firm. Due to the nature of this study, the impacts of the individual auditor's tenure and specialization are focused on here.

As illustrated by regulatory developments in the 21st century, auditor tenure has been connected to questions of independence and expertise, both of which are relevant for assessments of audit quality. In the United States, the Sarbanes-Oxley act (SOX 2002) mandated audit signee rotation every five years. Four years after, an EU directive (2006/43/EC) imposed a similar requirement for member states of the union. The main goal of these regulations was to improve auditor independence, which was seen by some as being potentially compromised by excessively long audit partner tenures (GAO 2003; EU Directive 2006/43/EC). However, some academics have presented evidence that called into question the benefits of these regulations (e.g. Chen et al. 2008; Huang et al. 2015; Kwon et al. 2014; Manry et al. 2008). Others have noted that as audit firm tenure increases, the auditor

may be able to gain client-specific expertise that may facilitate higher audit quality, and that such rotation rules could lead to additional costs (e.g. Ghosh & Moon 2005; Gul et al. 2009; EY 2015; KPMG 2017).

As this relates to experience, one would expect more experienced auditors to have, on average, longer tenures in their client portfolios, regardless of rotation requirements. This is simply due to the fact that experienced auditors have been involved in the business for a longer time and have therefore had more opportunities to establish longer-standing relationships with their clients. Studies investigating audit signee tenure have generally found tenure to be positively associated with measures of higher audit quality (e.g. Carcello & Nagy 2004; Chen et al. 2008; Manry et al. 2008), although some have presented mixed or contrary evidence (eg. Bedard & Johnstone 2010; Carey & Simnett 2006). Taken as a whole, the body of research on signee tenure seems to indicate that quality is likely to be higher as the tenure of the auditor increases. Hay (2013) further notes a positive association between tenure and fees in his meta-analysis of audit fee studies.

Most studies regarding industry specialization have focused on the specialization of the audit firm, rather than the specialization of the individual auditor (Zerni 2012). Such studies have mostly found industry specialization to be positively associated with proxies of higher audit quality (e.g. Bills et al. 2015; Ferguson et al. 2003; Francis et al. 2005; Gul et al. 2009; Knechel et al. 2007; O'Keefe et al. 1994b), although here too some mixed or contrary evidence has been presented (cf. Ferguson & Stokes 2002). As argued by Hay (2013), the weight of evidence regarding audit firm industry specialization therefore appears to be in favor of a positive association with audit fees.

However, Ferguson et al. (2003) presented evidence from Australia that audit fees seem to reflect industry expertise on an office-level, rather than at the firm-level. They further argue that expertise is an individual auditor's engagement-specific property. These sentiments have been echoed by several other scholars (e.g. Zerni 2012; Reichelt & Wang 2010: Choi et al. 2010), even if some of these studies have remained at the office-level rather than directly investigating the specialization of individual audit signees.

If industry expertise is a personal characteristic rather than a characteristic of the firm, then it might be the case that these firm-level studies can be partially extrapolated to the individual level. Some corroborative evidence on specialization of individual auditors has since been brought forth. Zerni (2012) studied the connection between industry specialization and fees

on the level of an individual audit signee in Sweden and found, first, that specialization occurs on the individual level, and second, that specialization in large public companies as well as specific industries was associated with higher fees. Goodwin and Wu (2014) furthered this literature by comparing office-level and partner-level specialization, and found a significant positive association for specialization at the signee level and fees. Controlling for this, no association was found for the office-level, suggesting that expertise lies indeed with the individual. Chi et al. (2017) investigated the impacts of client-specific experience and experience accumulated before the engagement on audit quality and perceptions thereof. They found experience predating the client as well as client-specific experience to be associated with lower discretionary accruals and creditor perceptions of quality in an Australian setting. As Garcia-Blandon and Argiles-Bosch (2018) noted, the scarce body of evidence on specialization at the audit signee level seems to generally indicate higher quality. However, they themselves presented evidence to the contrary from the Spanish audit market, suggesting the need for further research on this issue.

The behavioral research discussed in the previous chapter appears to lend some credence to this view of experience facilitating industry and client-specific knowledge, as an individual auditor's experience was concluded as likely facilitating knowledge acquisition that translates to better performance in specific audit tasks. A behavioral study by Low (2004) studied how industry specialization affects the risk assessment and planning decisions of auditors. He found specialization to improve risk assessments and to have mostly positive effects on planning, providing some further support for higher quality on the level of a specialized individual. Another study conducted by Bedard and Wright (1994) found auditors with more domain-specific experience to perform better on a risk assessment and audit program design task. On the other hand, Solomon et al. (1999) observed that industry-specialized auditors had better knowledge of non-errors in financial statements, but their evidence regarding knowledge of errors in the financial statements was mixed. As Bedard (2012) notes, behavioral research generally appears to support the notion of higher quality for industry specialists.

In conclusion, it appears that auditor tenure and specialization are associated with higher audit quality. Given that more experienced audit partners have had more time to cultivate long relationships with clients and specialize in certain industries, it also seems likely that domain-specific expertise and tenure are highly correlated with overall experience. Such a conjecture is corroborated to some degree by the behavioral research concerning the effects

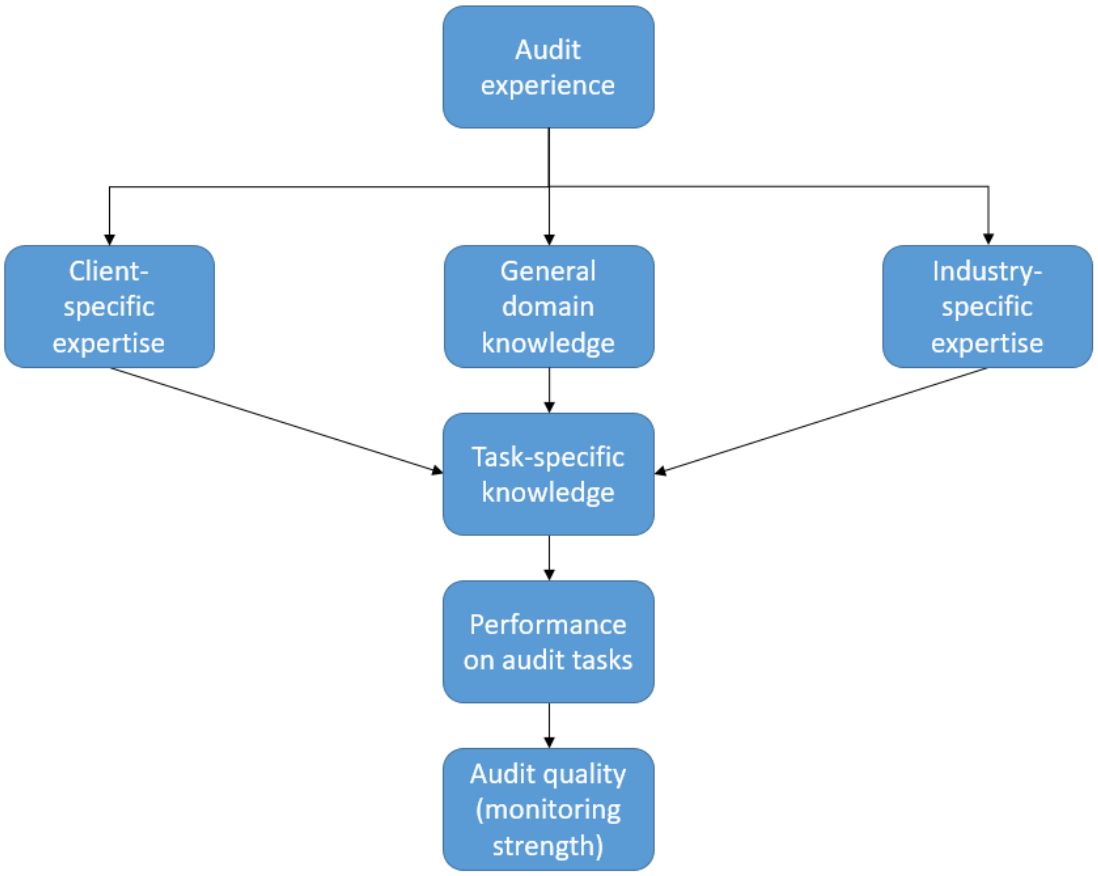
of auditor experience outlined in the previous chapter. As discussed therein, overall experience may facilitate higher task-specific performance through the acquisition of subspecialty knowledge (Libby and Tan 1994; Marchant 1990; Owhoso et al. 2002). Further behavioral studies concerning industry specialization (e.g. Bedard & Wright 1994; Low 2004) presented here also mostly support this view (cf. Solomon et al. 1999). As such, overall experience may come to contribute to audit quality and audit fees through knowledge relating to either a specific client or its industry in general, both of which are also likely to be connected with auditor tenure.

3.2 CONNECTING AUDIT EXPERIENCE TO AUDIT FEES

As discussed earlier, for audit fees to be causally linked to audit experience, audit experience would likely have to be connected to either the auditor's reputation or monitoring strength, which in turn would affect audit fees. In chapter **2.4**, it was concluded that the auditor's monitoring strength is likely to influence audit fees. In chapter **3.1**, it was proposed that behavioral studies as well as studies on auditor tenure and auditor specialization lend some support to the view that audit experience is associated with higher quality.

In sum, it appears quite possible, or even likely, that audit experience has a positive effect on audit quality, leading to higher fees. However, several significant caveats have to be made. The connections suggested by scholars between audit experience and audit expertise are largely under-researched, with some evidence providing mixed results (Bédard & Chi 1993). Additional inquiries and empirical studies into these topics are therefore needed. Furthermore, literature on the effects of an auditor's reputation on the individual audit signee level appears scarce or non-existent. As such, the connections between audit experience and audit quality are examined here only through factors relating to monitoring strength. Based on the discussion of the behavioral studies concerning audit experience and the literature on auditor industry and client specialization, Figure 3 seeks to illustrate the potential relationship between experience and an auditor's monitoring strength, utilizing in part the distinctions between different types of knowledge made by Bonner and Lewis (1990, pp. 3-6).

Figure 3 – Audit Experience, Expertise, and Monitoring Strength.



As can be seen from the figure, experience may facilitate the acquisition of different types of knowledge relating to specific audit tasks, clients or industries. Industry-specific and client-specific expertise are then expected to translate to task-specific knowledge. As argued by Bonner and Lewis (1990), the relationship between experience and task-specific performance is therefore not a direct one. However, if experience facilitates the acquisition of these different types of knowledge, the auditor's monitoring strength can be expected to increase through higher performance on audit tasks.

As illustrated previously in Figure 2, monitoring strength in turn is likely to be a crucial component of audit fees. This relationship is somewhat obscure due to the various interpretations of the term audit quality. However, if conventional methods of measuring audit quality are accepted, then the connection between monitoring strength and audit fees appears quite clear. As discussed in chapter **2.4.1**, prior research has found many associations between audit fees and quality measures that relate to monitoring strength.

Because audit fees are determined on the markets, it can be posited that fees are most directly affected by perceptions of quality. However, actual monitoring strength is likely to be

factored into these perceptions as the two are expected to become closely connected over time, as suggested by Watkins et al. (2004). Additionally, perceptions of auditor independence and confidence are important determinants of audit quality in their own right (IESBA 2018, p. 29; SEC 2000). It is therefore tentatively suggested here that audit experience facilitates higher quality and thereby higher audit fees, irrespective of the degree to which this relationship is mediated by reputational factors or monitoring strength. Having established this understanding, the following chapter outlines the existing research literature on the determinants of audit fees and audit models.

3.3 THE DETERMINANTS OF AUDIT FEES AND AUDIT FEE MODELS

In his seminal work, Simunic (1980) pioneered the development of audit fee modeling. His work served as the basis on which future models were to be constructed and later extended (Choi et al. 2010). As Causholli et al. (2010) note, audit fees would under Simunic's (1980) model equal the total costs of an audit if a given audit firm produces equivalent perceived quality across engagements in competitive markets. Causholli et al. (2010) further point out that these classic audit fee models linked fees directly to client characteristics, thereby bypassing production factors. Consequently, the audit fee models that emerged from this approach view the characteristics of the auditee as 'effective proxies for the factors of production and process cost' (Ibid., p. 170). This approach is partly due to the difficulty in obtaining data on production factors, chiefly labor hours (Causholli et al. 2010; DeFond & Zhang 2014). This study also faces such a limitation of data availability, and therefore the rather simplistic approach of viewing client attributes as indirect measures of audit effort and process costs has to be adopted here. In the following, an overview of commonly used audit fee models and their inputs is provided.

3.3.1 Commonly Used Audit Fee Models

Various different quantitative models have been used to estimate audit fees. These typically take the form of OLS regression models, with inputs regarding the characteristics of the auditor, the auditee or the audit engagement itself. The models are designed to account for the multitude of factors that are known to have an association with audit fees. Hay (2013) contends that these models are simplifications of the pricing process, and that they may therefore represent the complex reality of pricing only poorly. As discussed previously, the pricing of audit services is a product of various factors that may be interrelated. Additionally,

many of these proposed constituents of audit fees are either poorly understood or without firm backing from the research literature. Hay (2013) further argues that some crucial variables may possibly have been omitted from these models, despite the fact that they generally tend to achieve high explanatory power. Based on the previous discussions regarding the complexity of audit fee determination, such criticisms appear reasonable. Thus, one has to be particularly careful in constructing OLS regression models of audit fees, as the underlying assumptions of OLS models may easily be violated.

3.3.2 The Determinants of Audit Fees

Prior research has included nearly 200 different independent variables that may have an impact on audit fees (Causholli et al. 2010; Hay et al. 2006). Hay et al. (2006, p. 147) classify these into (1) client attributes, (2) auditor attributes, and (3) engagement attributes. Some of these attributes may be relate to context-specific factors, and therefore not be directly applicable to every audit market. However, certain attributes have been consistently found to be associated with audit fees, and many of these are the same as those that are used in the models seeking to estimate other measures of audit quality (DeFond & Zhang 2014).

These factors tend to relate to characteristics of the client, but some characteristics of the audit firm have also been noted to be significant. In addition, some research has also pointed to the personal characteristics of auditors as being associated with quality or fees (e.g. Cahan & Sun 2015; Gul et al. 2013; Niemi 2004; Sundgren & Svanström 2014). Based on prior research, the variables commonly used in audit fee models are summarized below in accordance with the categorization proposed by Hay et al. (2006). In addition, the audit experience of an individual auditor is also considered, as it is the focus of the empirical section of this study.

Client Attributes

As discussed above, client attributes have generally formed the core of most audit fee models. The attributes that have been found to be significant include the client's size, risk, and complexity (Causholli et al. 2010; Hay 2013; Hay et al. 2006). The underlying logic of these measurements is that changes in such attributes are expected to affect the amount of effort, i.e. labor hours, the auditor has to expend in conducting the audit (Causholli et al. 2010). In other words, as Causholli et al. (2010) and Hay et al. (2006) argue, these measures serve as proxies of production factors and process costs.

Client size has been identified as perhaps the most important attributed influencing audit fees (Hay 2013; Hay et al. 2006). Larger clients entail a larger volume of data presented in the financial statements, necessitating more testing by the auditor. The most common measure of client size has been total assets on the balance sheet, although some studies have also used revenue measurements (Hay 2013). The internal control environment is also likely to be more elaborate in larger companies, so the auditor also has to conduct more audit work to assess these controls. Although better internal control systems reduce control risk and may reduce the amount of testing necessary (Hogan & Wilkins 2008), the overwhelming body of evidence on client size as a driver of audit fees suggests that such an effect does not offset the impact of other size-related factors on fees.

Variables relating to client risk commonly include various measures of working capital, leverage, profitability and financial ratios indicating investor returns (DeFond & Zhang 2014; Hay 2013; Hay et al. 2006). These measures relate to the inherent risk in the client's accounts and the risks of deliberate manipulation of the managements' reports. For instance, higher working capital may indicate earnings manipulation, and low profitability may incentivize management to cover up poor performance by presenting overly positive reports. Measures of leverage may indicate financial distress, and they may also indicate the presence of financial covenants that could provide further incentives to manipulate the reports. High indicators of client risk may imply greater risk for the auditor to become involved in litigation that could losses (Hope & Langli 2010; Simunic 1980).

Client complexity is usually measured by the number of the company's subsidiaries or the number of business segments they have (Causholli et al. 2010; Hay et al. 2006). Simunic (1980) argued that greater decentralization of decision making increases the monitoring effort of the auditor. The same principle can be applied to both decentralization in terms of business segments as well as the number of separate legal entities involved in the auditee's reporting. Furthermore, if the client has to consolidate subsidiaries' accounts, this is likely to require audit testing specifically targeted at these consolidation entries.

Auditor Attributes

Auditor attributes have also been found to play a crucial part in the determination of audit fees. Hay et al. (2006, pp. 176-177) further divide these attributes into 'auditor quality', 'auditor tenure' and 'auditor location'. Auditor quality has generally been proxied by characteristics of the audit firm, specifically through the Big Four auditor versus non-Big

Four auditor dichotomy or measures of the auditor's industry specialization (Hay et al. 2006). A significant price premium for these firms has often been observed (e.g. Choi et al 2008; Ferguson & Stokes 2002; Francis & Simon 1987), although Hay (2013) notes in his meta-analysis that these results may be partly confounded by methodological issues. Hay & Knechel (2017) investigated the existence of the Big Four premium through meta-regression analysis and found that a statistically significant premium remained even after controlling for publication bias, although said bias resulted in overstating the premium by around 20 percent.

As discussed in chapter **3.1.2**, auditor tenure and industry specialization also appear to be associated with higher audit quality and audit fees. Audit firm industry specialization is most commonly measured through the audit firm's market share, in a given industry, of the client firms' total assets, audit fees, or the total number of clients (Causholli et al. 2010). Audousset-Coulier et al. (2016) however make the point that the choice of an industry specialization measurement may have significant impacts on the outputs of models estimating audit fees or earnings quality. They argue that fee-based measures are likely to find fee premia, which may reflect audit quality, the auditor's reputation, or bargaining power. On the other hand, they find negative associations for fees with measures of a given industry's share in an auditor's client portfolio, likely due to discounts related to economies of scale. As such, fee-based measures of market appear to be the most valid for capturing the effects industry specialization may have on audit quality.

Longer audit firm tenure has mostly been found to have a positive association with fees in recent studies (Hay 2013). Hay et al. (2006) also noted an association between auditor change and fees in earlier studies, even though tenure itself wasn't found significant in those studies. The more recent meta-analysis by Hay (2013), however, also found an association for tenure. It is worth noting that this connection between tenure or auditor change and audit fees may be confounded by the pricing policies of auditors. Fee discounts in the beginning of an audit engagement have been widely observed (DeAngelo 1981b; Fung et al. 2012; Huang et al. 2015; Kwon et al. 2014; Simon & Francis 1988). As such, a measure of audit firm tenure or auditor change appears to be an important variable to include in audit fee models.

Hay (2013) also summarized the body of research on the effects of the auditor's location on audit fees. His summary suggests that audits taking place in more expensive areas of a given

country may result in higher fees. He therefore suggests incorporating this variable into audit fee models, as previous studies have often omitted this variable.

Less research has focused on the quality of the individual auditor. However, recent studies by Cahan and Sun (2015), Gul et al. (2013), as well as Sundgren and Svanström (2014) have observed statistically significant associations between audit quality and certain measures of the individual audit signee's characteristics, such as educational level, experience, age, and the size of the auditor's client portfolio. An earlier study by Niemi (2004) also found the auditor's higher experience, level of education, and certification level to be associated with increased audit fees. As discussed in chapter **3.1.2**, the scarce studies on industry specialization and tenure of an individual auditor lend some support to a positive association with fees. Similarly, the behavioral studies (see chapter **3.1.1**) examining the individual characteristics of an auditor also seem to be suggestive, on balance, of positive effects on audit quality.

The logic behind the idea of an audit signee's individual characteristics having impacts on audit quality and fees is quite intuitive: audit engagements are ultimately conducted by individual auditors whose characteristics are likely to play into the decisions and judgements made during the audit process. However, the availability of information regarding the auditors' personal characteristics is scarce in many regulatory environments.

Engagement Attributess

Hay et al. (2006) also outline a group of variables that relate to the specific engagement, as opposed to the auditor or the client. These include attributes such as report lag, i.e. the time it takes to issue the audit report after year end, whether the audit opinion is modified, whether the audit is conducted during the busy season, and the amount of non-audit services (NAS) provided to the client. Hay (2013) notes that most recent studies have found positive associations for audit fees and modified or qualified audit opinions as well as audits that take place during the busy season, although the association for the latter appears to be weaker. He also reports that most studies have found strongly significant positive associations for non-audit services and audit fees.

Aside from NAS, the relationships found with these other variables are logically straightforward. Modified audit opinions and report lag may imply a larger number of problems encountered during the audit, which necessitates more work form the auditor. Busy season audits, on the other hand, may require overtime work from auditors (Hay et al. 2006),

and the members of the audit team may also be less efficient due to longer working hours and added time pressure. For non-audit services, Causholli et al. (2010) propose that higher fees may indicate that they add value to the audit, although as Hay (2013) notes, many have suggested that non-audit services may result in fee-cutting due to the income the audit firms gain from these other services.

3.4 IMPLICATIONS FOR STUDIES OF AUDIT FEES

As discussed above, several disparate lines of research have, in one way or another, investigated whether and how experience may contribute to audit quality and fees. The behavioral studies outlined in chapter **3.1.1** suggest that experience may facilitate higher quality of audit work, though the results are somewhat equivocal and perhaps even out of date given the changes in the profession. Worth noting is that many of these studies noted a distinction between overall experience and more specific knowledge, though others emphasized the role of experience in facilitating knowledge acquisition. This study is more concerned with the role of overall experience, so whether its effects are mediated by other types of knowledge is not of paramount importance. Marchant (1990) argued that variables concerning specific types of audit knowledge could decrease the explanatory of overall experience, so omitting such variables in studies such as this may be in order.

The relationships between auditor tenure and industry specialization with quality and fees appear clearer. However, most of these studies have focused on tenure and specialization on the audit-firm level. As such, only indirect and suggestive inferences can be made based on this literature as they relate to quality and fees.

Based on the discussion in chapter **3.3**, the most important variables relate to the attributes of the client. Additionally, certain auditor attributes are also known to be associated with fees. Engagement related factors have also been identified, though these are likely not as important in the relatively homogenous sample used in this study. Thus, auditor and client related variables will form the core of the models used in the empirical section. Notably, however, there is a general lack of studies utilizing information on the personal characteristics of individual audit signees. This study will therefore attempt to contribute to this literature by incorporating such measures into the models.

4. RESEARCH DESIGN

The empirical section of this study seeks to estimate the effects of auditor experience on audit quality and audit fees through OLS estimation. To address the research question **RQ_1** a hypothesis is developed and various OLS models constructed to test it with a sample consisting of TE500 companies during 2012-2016. This chapter outlines the rationale for the hypothesis, the data used in the sample, and the construction of the regression models.

4.1 HYPOTHESIS DEVELOPMENT

The literature review conducted in chapters **2** and **3** indicates that audit experience may affect fees through many different pathways, and that whether experience facilitates higher of lower quality and fees is not entirely clear. The behavioral studies appear to lean somewhat in favor of positive effects, though many of them have also produced contrary results (see chapter **3.1.1**). Additionally, most of these studies date back the previous century before the big accounting scandals and consequent regulations transpired. The profession has changed markedly in the 2000's, and the tasks individual auditors face may also be different in many ways when compared to those examined in the behavioral studies. However, the fundamental process of auditing is still similar, so these studies collectively may be taken to lend some support to the notion that experience facilitates higher quality and fees. Research concerned with auditor tenure and specialization also indicates that some degree of learning takes place during the course of the auditor's work (see chapter **3.1.2**).

The author is aware of only three studies that have directly examined overall experience in relation to fees. Niemi (2004) included the overall experience of an auditor as a variable into his regression models on audit fees in small Finnish audit firms and found it to be positively associated with audit fees based on hourly billing rates. Though the context of his study was quite different, it supports at least to some degree the notion that experience is priced into the fees in the market. A more recent study conducted by Cahan and Sun (2015) took this relationship between experience and fees as one of their study's main focuses and found a positive association. Though this study concerned Chinese firms, its results may still be indicative for other audit markets as well. On the other hand, Hardies et al. (2015) found a significant negative association for their control variable of overall experience in Belgian firms. However, as the audit markets are relatively small in Finland, it may be the case that an individual reputation is easier for auditors to establish.

Given and the evidence provided by Niemi (2004) as well as Cahan and Sun (2015) and the literature review conducted in chapters **2** and **3**, it appears more likely than not that audit experience will have some form of positive association with fees, despite the conflicting results of Hardies et al. (2015). Thus, the same hypothesis as in Cahan and Sun's (2015, p. 84) study is tested to answer $\mathbf{RQ_1}$:

$\mathbf{H_1}$: Audit fees are positively associated with signee's audit experience.

4.2 DATA COLLECTION AND SAMPLE

The data used in this study consist of two main bodies: (1) data on the time of authorization of KHT auditors, and (2) financial statements information of TE500 companies through 2012-2016, including data on the total audit fees charged for audit services in a given fiscal year for each audit engagement. The former set of data was collected by the accounting department of Aalto University, and then further augmented using data provided by PRH. The latter body of data was collected by the accounting department from BvD / Moody's Analytics' Amadeus database for balance sheet and profit and loss statement information, and the audit fee data was hand-collected from the registered financial statements of TE500 companies, accessed through PRH's database *Virre*.

The authorization years of auditors were matched with the financial statements information mainly by the audit signees' names and birth years. In the few cases where ambiguities remained, these were resolved, where possible, through recourse to various online sources regarding the auditors' audit firm affiliations, work histories, etc. The two bodies of data were then connected such that the year-end date of the fiscal year to which the financial statements relate could be used to calculate the amount of years that had elapsed from the authorization year of the auditor. Thus, at the end of the process, each firm-year observation included the experience of the audit signee as measured in whole years elapsed between KHT authorization and the end of the fiscal year under audit. The vast majority of new KHT auditors are officially registered as such in either December or January, shortly after passing the examination in the previous fall. The authorization years of auditors were therefore rounded to the closest full year, as this was deemed to be a sufficiently accurate level of detail given the size and nature of the sample. The number of years of overall audit experience then served as the basis for the different mathematical definitions of the audit experience variable utilized in the regression models.

The initial data had 2491 firm-year observations concerning the fiscal years 2012-2016, including audits conducted by both Big Four auditors and other firms. However, some firm-year observations had to be dropped from the samples due to missing pieces of necessary information in the data. Some observations did not include the name of the principal audit signee. For others, information regarding the time of the signee's authorization was unavailable as PRH's dataset only extended back until 1992, and the accounting department's dataset also lacked some auditors from these earlier years. In addition, some auditors who only had the lower level of authorization ("HT" auditors) were dropped from the sample as the focus here is exclusively on KHT auditors. Some observations were also dropped due to lacunae in the financial statements data.

The regression models are applied to two samples, one consisting of audits by all audit firms, and a Big Four subsample consisting solely of audits by Big Four auditors. This is done in order to gain an understanding of whether the potential relationship between audit experience and audit fees is different in the Big Four firms compared with other audit firms. The nature and effects of the experience of an individual audit signee could differ from other auditors for many reasons. These may include, for instance, different backgrounds and career paths between the auditors, different intra-organizational restrictions on the auditors' work, differences in professional education arranged or provided by the signee's audit firm as well as various other factors. Thus, an examination of a separate Big Four subsample may provide additional insight into the intricacies of the relationships between experience and fees.

Table 1 displays the sample sizes for both samples after the omissions stated above. Despite these omissions, the final sample sizes for both the full sample (n = 2389) and the subsample (n = 2201) can be regarded as relatively large compared with other studies with audit fees as a dependent variable. For instance, Hay (2013) found in his meta-analysis of regression-based audit fee studies that in 67 journal articles published during 2004-2007 the mean number of observations was 1539. Additionally, this number was inflated by a handful of significantly larger samples, such that most studies had sample sizes well below this mean. Thus, the sample sizes obtained here compare favorably with these studies, facilitating the acquisition of significant results through the OLS models.

Table 1 – Sample Sizes.

	Number of observations
Initial data	**2491**
Less:	
Missing audit signee's name	-31
Missing audit signee's authorization date	-7
Audited by a non-KHT Auditor	-20
Missing financial statements data	-40
Missing audit fee data	-4
Final sample, all auditors	**2389**
Less:	
Engagements of Non-Big Four auditors	188
Final sample, Big Four auditors	**2201**

4.3. THE AUDIT FEE MODELS

Three ordinary least squares (OLS) regression models are estimated using the statistical software package STATA to test hypothesis $\mathbf{H_1}$. All three models are applied separately to both samples. The initial model is based in part on the model of Cahan and Sun (2015), who investigated the association of audit experience and audit fees as well as discretionary accruals in the Chinese audit market. However, many adjustments are made to provide a slightly simpler model and to improve its fit to the context of the Finnish audit market.

All three models seek to estimate the association between an independent variable (an audit signee's overall audit experience) and the dependent variable (audit fees). Audit fees are defined in all models as the natural logarithm of the audit fees charged relating to the audit of a given fiscal year. In model 1, the audit signee's experience is expressed as the natural logarithm of years of overall audit experience. Various control variables are incorporated into the model to separate the impact of known confounding factors associated with audit fees, as outlined in chapter **3.3.1**. Industry dummies and year dummies are also included to control for fixed effects. The hypothesis $\mathbf{H_1}$ is first tested by estimating model 1:

$$AFEE = b_0 + b_1LNSAEXP + b_2BIG4 + b_3AFIS + b_4SMALE + b_5ACHANGE + b_6SIZE + b_7LISTED + b_8SQRSUB + b_9LOSS + b_{10}REC + Year\ dummies + Industry\ dummies + \varepsilon, \quad (1)$$

where:

AFEE = the natural logarithm of total audit fees in euros charged by the auditor for audit services relating to the audit of a given fiscal year

LNSAEXP = the audit report signee's overall audit experience as the natural logarithm of the signee's audit experience measured in years since KHT authorization

BIG4 = dummy variable, coded 1 for engagements audited by Big Four auditors and 0 for engagements audited by a non-Big Four auditor

AFIS = the audit firm's industry specialization as the ratio of the audit firm's total fees in the industry for a given fiscal year (based on two-digit SIC-codes) divided by the total audit fees of all audit firms in the same industry and fiscal year

SMALE = dummy variable, assigned a value of 1 for male audit signees and 0 for females.

ACHANGE = dummy variable, a value of 1 assigned if the audit signee or audit firm is different from the previous year, otherwise 0

SIZE = the audit client's size, measured as the natural logarithm of the auditee's total assets

LISTED = dummy variable with a value of 1 if the auditee is listed on the Nasdaq Helsinki Stock exchange, otherwise 0

SQRSUB = the square root of the number of the client's consolidated subsidiaries

LOSS = dummy variable with a value of 1 if the financial statements indicate a negative net result, otherwise 0

REC = the amount of total receivables on the client's balance sheet, deflated by total assets

Signee audit experience is defined here as the natural logarithm of the number of years of overall experience. The primary reason behind this conversion is that audit fees are not expected to grow in a linear fashion with experience throughout the entirety of an auditor's career. One might expect an auditor to rapidly accumulate valuable experience in the early parts of their careers, whereas some diminishing returns are likely to occur in the later years as it gets increasingly difficult to gain new insights and improve work performance. The auditors' years of overall experience since authorization are therefore converted into their natural logarithms to capture this pattern of decreasing growth.

In contrast with Cahan and Sun (2015), the audit signee's industry specialization is omitted from the models. As discussed in chapter **3.1.2**, a greater weight of evidence lends support to an association between firm-level specialization and fees. In addition, if industry specialization ultimately resides in individual auditors, as proposed by Ferguson et al. (2003) and others, such measures would likely be highly correlated with each other. Indeed, such a high correlation was observed by Cahan and Sun (2015) between their measures of firm-level and signee-level specialization. Moreover, a signee-level measure could weaken the explanatory power of overall experience (Marchant 1990), which is the topic of interest in this study. Consequently, that variable is not included in the models. This also prevents

problems of multicollinearity arising from incorporating two variables that are highly correlated with each other into the model. This would violate a central assumption of OLS regression models that the predictor variables are independent of one another, which might result in less reliable estimates for the regression coefficients (Wisniewski 2009, p. 385).

In addition, signee education level is omitted due to the differences in the regulatory environments between China and Finland. In Finland, the auditor authorization system can be said to consist of two tiers, with the higher tier auditors consisting of KHT auditors (Niemi 2004). The design of this study is concerned only with these higher tier auditors, who generally have at least a master's level academic degree due to the requirements in place for authorization. Though the Finnish Auditing Act (1141/2015) permits HT and KHT authorization for auditors with bachelor level academic degrees, more stringent experience requirements apply for auditors without a master's level degree (Finnish Auditing Act 1141/2015 chapter 6, sections 2 & section 3 subsections 2 and 3). Thus, KHT auditors generally possess at least a master's level academic degree. The gender variable of the signee is, however, retained in this study. Ittonen and Peni (2012) found a positive association for female signees and fees in three Nordic countries, including Finland, in a sample of audits from 2005 to 2006. Hardies et al. (2015) observed a roughly 7% premium among a large sample of Belgian audit clients during 2008-2011. These studies suggest that auditor gender may be salient also for this sample, given the similar cultural contexts. However, evidence for such a premium is still generally scarce.

Direct measures of signee audit tenure and audit firm tenure are also omitted from the model. An alternative measure is put in their place due to reasons of data availability, as well as the fact that Cahan and Sun (2015) found these two measures not to have statistically significant associations with fees in their model. The substitute measure (*ACHANGE)* is a dummy variable that captures whether the audit signee is different compared to the previous fiscal year. A value of 1 is assigned for instances where a change in the audit signee has been observed, and a value of 0 is assigned where no change had taken place. In cases where the audit firm had changed, the audit partner also changed by necessity. Thus, the measure includes both firm and signee-level changes. The purpose of this measure is also to control for the impact of low-ball offers for audit engagements, a commonly observed phenomenon in the initial years of audit engagements (see chapter **3.3.2**).

Other omitted control variables include the client's number of business segments, as client complexity is expected to be better captured by the number of consolidated subsidiaries (*SQRSUB*). The model is further simplified by using the *LOSS* dummy as the primary measure of client risk in place of return on assets (ROA) and measures of the client's indebtedness. This dummy variable is assigned a value of 1 if the net result presented in the profit and loss statement is negative, and a value of 0 is assigned if the client turned a profit that fiscal year.

Year dummies and industry dummies are incorporated into the model to control for fixed effects, and a dummy variable for modified audit opinions is omitted. The year and industry dummies control for fixed effects, as the sample consists of observations from five years and many different industries. The industry dummies are defined here based on two-digit SIC (standard industry classification) codes. Without controlling for year effects, the results might otherwise be distorted due to differences in many factors, such as differences in the macro-economic cycle as well as the evolving regulation of the auditing profession imposing increasing requirements on audit work. Likewise, different industries have disparate risks profiles, which may in turn affect audit fees. Finally, no dummy variable is included for modified audit opinions, as such instances are rare in the audit market of large Finnish companies, and thereby unlikely to significant affect the results.

To further evaluate the relationship between experience and fees, a second model is constructed with a different specification of the experience variable. *LNSAEXP* is dropped in favor of an experience variable that is defined as the square of years elapsed since the auditor's authorization (*SAEXPSQ)*, which is included in the model along with the unmodified years of experience (*SAEXP*). This is done to test whether another definition of audit experience might better represent the relationship between experience and fees. An auditor's experience could potentially be negatively associated with the quality of their work towards the end of their career due to, for instance, shortened career horizons (Knechel et al. 2013), and reduced professional skepticism (Shaub & Lawrence 2002, cited in Nelson 2009). Thus, a relationship where an increase in experience is initially associated positively with fees, followed by a peak level and a negative association thereafter, is also conceivable. Squaring the years of experience may therefore better represent this relationship than the natural logarithm, if the relationship takes the shape of a downward opening parabola as described above. The following model is estimated to test this relationship:

$$AFEE = b_0 + b_1SAEXP + b_2SAEXPSQ + b_3BIG4 + b_4AFIS + b_5SMALE + b_6ACHANGE + b_7SIZE + b_8LISTED + b_9SQRSUB + b_{10}LOSS + b_{11}REC + Year\ dummies + Industry\ dummies + \varepsilon, \quad (2)$$

where:

SAEXP = the audit report signee's overall audit experience as the number of years of experience since KHT authorization

SAEXPSQ = the audit report signee's overall experience as measured in years squared.

The rest of the variables are the same as in model 1 (see definitions under equation 1).

Finally, a third model is constructed to analyze how experience relates to audit fees at different *levels* of experience. The purpose of this model is to analyze whether an auditor's experience may be differentially associated with fees at different stages of their careers, while permitting a relationship different from the ones proposed by the other two models to arise from the data. For instance, experience could have a strongly positive linear relationship with fees until the final few years of the auditor's career followed by a significant drop as the auditors seek to slow down and prepare for retirement, in line with the arguments of Knechel et al. (2013). A categorical experience variable might therefore be better able to capture the relationship between experience and fees in such scenarios.

In this model, an audit signees's overall experience (*SAEXPCAT*) is defined on the basis of experience groupings that are expected to reflect different stages in the auditors' careers. Auditors are divided into four experience categories based on a preliminary analysis of the auditors' career spans conducted in chapter **5.1**. The categories are dummy coded such that a reference category can be compared against others.

Thus, the third model is estimated as follows:

$$AFEE = b_0 + b_1SAEXPCAT + b_2BIG4 + b_3AFIS + b_4SMALE + b_5ACHANGE + b_6SIZE + b_7LISTED + b_8SQRSUB + b_9LOSS + b_{10}REC + Year\ dummies + Industry\ dummies + \varepsilon, \quad (3)$$

Where: *SAEXPCAT* = dummy variables for the four experience categories (0-5; 6-15; 16-25; 26-40 years). A value of 1 is assigned where the auditor belongs to the given experience category, and a value of 0 is assigned otherwise. The rest of the variables are defined the same as in models 1 and 2.

Finally, the models laid out above are all applied to the Big Four subsample, with one exception. The models are otherwise the same as equations 1, 2, and 3, except that the Big

Four dummy variable (*BIG4*) is now omitted from the model as redundant. This is done in order to examine whether the relationship between experience and fees is different in for Big Four auditors compared with the full sample.

5. FINDIGS & DISCUSSION

This chapter begins with a description of the samples used in this study, followed by preliminary analyses of the ages, career spans, and experience of auditors, and how these may be related to audit fees. These analyses seek to establish a basis for the categorization of experience utilized in the third regression model and to provide insight as to whether a simple linear relationship exists between experience and fees in the absence of controls. Afterwards, the results of the regression models are reported for both samples, followed by an analysis of both as well as comparisons between the two. The chapter concludes with a discussion of the findings.

5.1 DESCRIPTIVE STATISTICS & PRELIMINARY ANALYSES

5.1.1 Descriptive Statistics

The descriptive statistics for the full sample and the Big Four subsample are reported in Table 2 below. As is evident from the table, the distributions for most variables are largely similar between the two samples due in part to the high proportion (92.1%) of audits conducted by the Big Four firms in the full sample. Such a high proportion, however, is to be expected in a sample consisting of the largest firms in Finland. The Big Four firms together hold dominant market shares in the audit market of large companies in Finland (PRH 2016) as well as elsewhere (EC 2017, p. 7; GAO 2008, p. 15).

As illustrated in the table below, average fees were higher in the Big Four subsample. The mean natural logarithm of *AFEE* was 11.263 in the Big Four sample, compared with 11.118 in the full sample, corresponding to 77,886€ and 72,258€, respectively. In the full sample, the auditors had a mean of 18.54 years of experience since authorization, compared with 18.41 in the Big Four sample. The median was the same for both samples at 19 years. Thus, the largest Finnish companies tend to be audited by very experienced auditors. The maximum years of audit experience in the full sample was 38 years, compared with 33 years in the Big Four sample. This may suggest mandatory retirement age policies in the Big Four audit firms that prevent their auditors from acting as signing partners into their mid and late sixties.

Table 2 – Descriptive Statistics

Panel A: Descriptive Statistics for the Full Sample (n = 2389).

Variable	Mean	SD	Min	Q1	Median	Q3	Max
LNFEE	11.188	1.260	6.908	10.356	11.002	11.835	17.315
SAEXP	18.542	6.649	0.000	13.000	19.000	23.000	38.000
LNSAEXP	2.839	0.439	0.000	2.565	2.944	3.135	3.638
SAEXPSQ	388.005	253.490	0.000	169.000	361.000	529.000	1444.000
BIG4	0.921	0.269	0.000	1.000	1.000	1.000	1.000
AFIS	0.323	0.257	0.000	0.127	0.263	0.491	1.000
SMALE	0.794	0.404	0.000	1.000	1.000	1.000	1.000
ACHANGE	0.147	0.355	0.000	0.000	0.000	0.000	1.000
SIZE	18.809	1.425	14.998	17.754	18.602	19.623	24.528
LISTED	0.198	0.399	0.000	0.000	0.000	0.000	1.000
SQRSUB	2.273	2.781	0.000	0.000	1.732	3.464	21.679
LOSS	0.221	0.415	0.000	0.000	0.000	0.000	1.000
REC	0.171	0.147	-0.019	0.059	0.141	0.245	0.922

Panel B: Descriptive Statistics for the Big Four Subsample (n = 2201)

Variable	Mean	SD	Min	Q1	Median	Q3	Max
LNFEE	11.263	1.259	6.908	10.434	11.082	11.918	17.315
SAEXP	18.411	6.201	0.000	13.000	19.000	23.000	33.000
LNSAEXP	2.843	0.407	0.000	2.565	2.944	3.135	3.497
SAEXPSQ	377.408	231.550	0.000	169.000	361.000	529.000	1089.000
AFIS	0.345	0.251	0.007	0.150	0.280	0.508	1.000
SMALE	0.783	0.412	0.000	1.000	1.000	1.000	1.000
ACHANGE	0.146	0.353	0.000	0.000	0.000	0.000	1.000
SIZE	18.844	1.438	14.998	17.778	18.611	19.649	24.528
LISTED	0.211	0.408	0.000	0.000	0.000	0.000	1.000
SQRSUB	2.295	2.853	0.000	0.000	1.732	3.606	21.679
LOSS	0.230	0.421	0.000	0.000	0.000	0.000	1.000
REC	0.173	0.142	-0.019	0.065	0.147	0.246	0.922

Worth noting is also that the dummy variable *SMALE* obtains a coefficient of .794 in the full sample and .783 in the Big Four subsample, indicating that nearly 80% of the audits were signed by male auditors. This likely reflects in part the fact that in the late 1980's and 1990's males were significantly overrepresented in the number of newly authorized KHT auditors. Given the amount of experience possessed by these auditors of large companies, a majority were in fact authorized prior to the year 2000. However, since then the gender distribution has become much more balanced, nearing a ratio of 1 female to 1 male auditor, as indicated by the authorization data. Thus, later studies of audit quality and fees in large Finnish companies may deal with samples comprising more female auditors, which could affect the results of these studies to the extent that gender influences quality and/or fees.

Other notable differences were also observed. The Big Four sample had a higher mean of audit firm industry specialization (0.345) than the auditors in the full sample (0.323), and their audits comprised a higher number of audits of listed companies (21.1%) than in the full sample (19.8%). The square root of subsidiaries (SQRSUB) for clients in these two samples were 2.273 and 2.295 in the full sample and in the Big Four subsample, respectively. The figures suggest that the Big Four may have a greater capacity to specialize in certain industries, perhaps especially more complex ones, and be better equipped to audit larger and more complex entities than their non-Big Four counterparts.

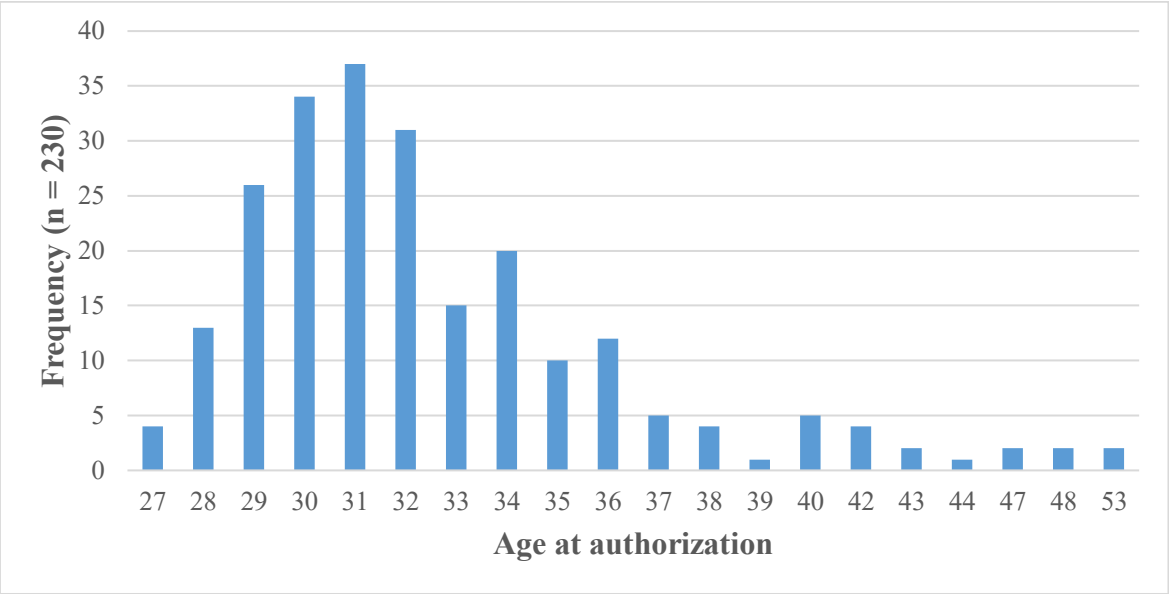
5.1.2 Audit Experience, Career Spans, and Fees

In order to decide upon the groupings of the experience variable used in the third regression model (see equation 3), a preliminary analysis of KHT auditors' typical career spans is conducted. The full sample consisted of 2389 firm-year observations and 236 unique auditors. Thus, the mean number of audit engagements for individual audit signees was just over 10 engagements per auditor. For 230 of these auditors, data on the auditors' birth years were available, allowing for an examination of the ages of the auditors at authorization as well as at the time of the audit for the vast majority (2369) of observations in full sample.

The average age of all auditors at the time of their authorization was 32.66 years. The median was 31 years and the standard deviation 4.31 years. For the Big Four subsample the average, median, and standard deviation were 32.19 years, 31 years, and 3.92 years, respectively. The ages of the auditors at the time of their authorization were therefore similar in both samples,

although variation appears slightly greater among non-Big Four auditors. Figure 4 depicts the age distribution of the auditors at the time of their KHT authorization for the full sample.

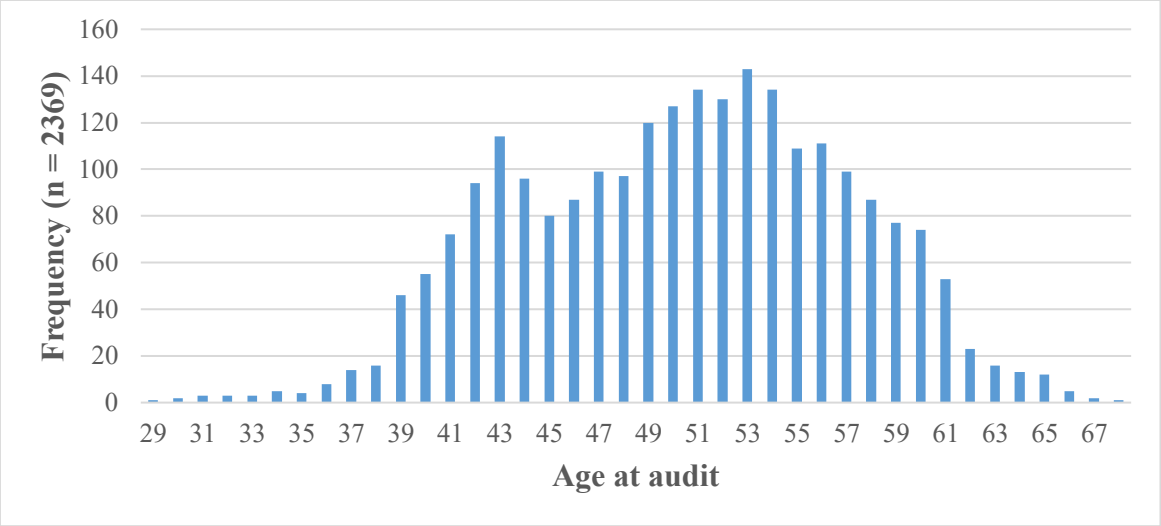
Figure 4 – The Age of Auditors at the Time of Authorization.



As can be seen from the figure above, the distribution of the ages of auditors at the time of their KHT authorization is heavily concentrated around the age of 31, although some auditors were authorized as late as in their late 40's to early 50's. The peak observed in the early 30's is not surprising, as the requirements for KHT authorization include a requirement of at least three years of relevant accounting related work experience (Finnish Auditing Act 1141/2015 chapter 6, section 2, subsection 5 & section 3, subsections 1 & 2). Thus, the typical KHT has likely obtained their master's degree in their mid to late 20's, and after fulfilling the experience requirements, completed the KHT authorization exam within 3-10 years of graduation.

Figure 5 (below) depicts the distribution of the KHT auditors' ages at the end of the fiscal years that were audited in the full sample. The audit report signees of TE500 companies are mostly older than 38 years of age. In line with expectations, KHT auditors generally do not act as signing partners in large audit engagements in the early years after their authorization. Instead, the signees tend to be those at the highest levels of the audit firms' organizations, i.e., partners. For the auditors to rise up the ranks of their organizations to a point where they begin to act as signing partners for large audit engagements, they therefore typically have to accumulate significant amounts of experience and stature within their firm and in the market, even after acquiring their KHT certificate.

Figure 5 – The Age of Auditors at the Time of the Audit.



At the other tail of the distribution, there is a sharp drop-off in the number of audits conducted by auditors older than 61 years. This suggests that these auditors tend to retire relatively early. This may potentially reflect mandatory retirement ages in the audit firms, set at around or slightly above 60 years of age, especially among the Big Four auditors. Thus, the prime years for KHTs auditor in terms of the volume of audit reports signed are around 39-61 years of age.

At the 5th percentile of years of experience, auditors had 9 years of experience and 13 years at the 25th percentile. Thus, it appears that there is generally a lag of roughly 10 years after authorization before KHT auditors begin to act as signing partners in these TE500 audit engagements. At the 95th percentile, auditors had 29 years of experience, meaning that 90% of the firm-year observations consisted of audits signed by auditors with 9-29 years of experience after KHT authorization. A typical auditor signing the audit report of a TE500 company therefore appears to obtain their authorization at around the age of 31, advance in their careers to a point where they act as signing partners on large engagements at around 40, and finally, retire at roughly 61 years of age after a 30-year career as an authorized KHT auditor.

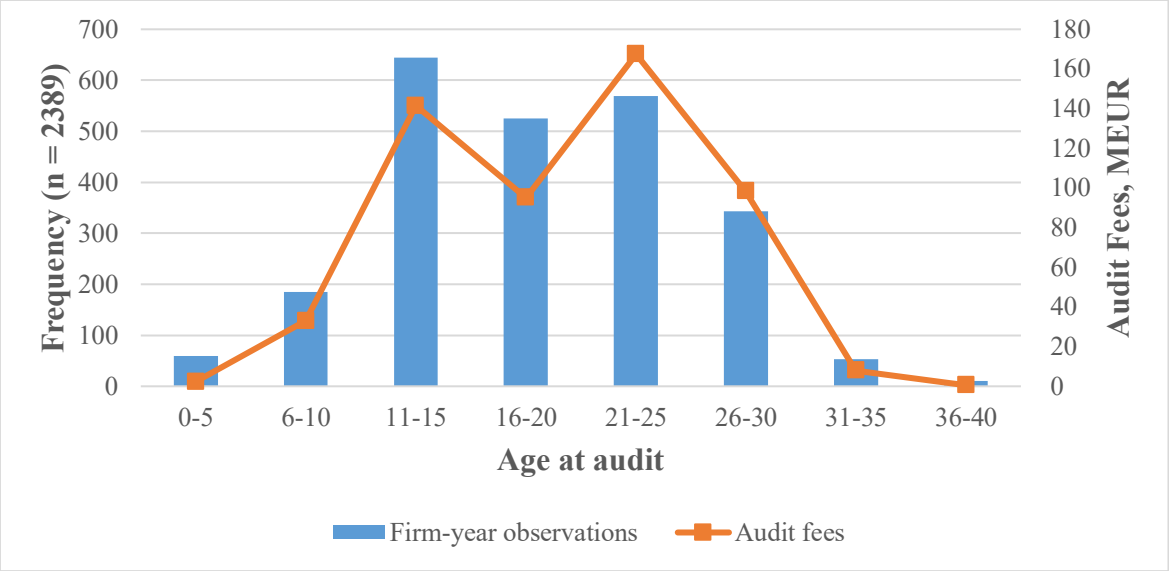
Given this typical career span of KHT auditors, the auditors are likely to be close to retirement at around 25-26 years of experience. By then, they are likely well established financially and have shorter career horizons. A short career horizon near retirement age may lead to weaker incentives, in the form of profit shares, for such auditors, though this also depends on the structure of the compensation schemes in the audit firms (Knechel et al. 2013). Consequently, the auditors may be less motivated to push for higher fees at the tail

end of their careers. Conversely, a KHT auditor can be regarded as relatively inexperienced until obtaining at least around 10 years of experience, since less experienced auditors rarely sign the audit reports of these large companies. Somewhere between 13 years (at the 25th percentile in terms of the number of audit reports signed) and 15 years of experience the auditor is, however, likely to be fairly well established in the market as well as within their own firm. Thus, if the relationship between experience and fees is not one of monotonic growth, the 'prime' years of a KHT auditor may be expected to be around 16 to 25 years since authorization, with potentially lower fees before and after this period in their careers.

5.1.3 Audit Experience and Fees

Figure 6 (below) illustrates the number of audit engagements and total audit fees charged by auditors at different levels of experience. The auditors with 11-15 years of experience audited the highest number of engagements (645 audits), though the fees they charged for these audits were significantly lower than for the group with 21-25 years of experience (141 vs. 167 million euros), despite the latter group signing only 569 audits. Similarly, the group with 16-20 years of experience also had smaller fees relative to the number of audits they conducted. The proportion of fees charged by auditors with 26-30 years of experience was also higher than would be predicted by the number of audits conducted by this group. In contrast, the groups with up to 15 years as well as groups with more than 30 years of experience generally had lower fees relative to the number of audits. Thus, audit fees appear to peak during the latter half of the auditor's career, excluding the final few years, and they also appear to be lower during the first 15 years.

Figure 6 – Audit Fees and Number of Firm-year Observations by Level of Experience.



Taken together, this pattern suggests a positive relationship between experience and fees, though not a linear one. A causal relationship between experience and fees cannot be inferred from this pattern. The larger fees among auditors with more experience relative to the less experienced auditors may very well reflect differences in the characteristics of these auditors' clients, such as size and complexity, as well as engagement-specific attributes, or even other personal characteristics of the individual auditors.

A look at the correlations between the experience variables and audit fees (*AFEE*) as well as amongst the independent variables may provide further insight into these relationships. The purpose of correlation measures is to observe whether two variables have a linear relationship with each other, i.e., whether a change in one variable results in a corresponding change in the other (Waters 1997, pp. 249-250). The correlation coefficient shows the strength of this linear relationship as a value between -1 and 1. A correlation matrix is therefore constructed to analyze these relationships.

Table 3 depicts the Pearson and Spearman correlation coefficients for the variables used in the regression models. Spearman's coefficient of rank correlation, which is derived from Pearson's coefficient, applies to ranked data, and is interpreted the same way as Pearson's coefficient (Waters 1997, pp. 252-254). Spearman's coefficient can therefore be used to assess relationships where variables are not linearly related or normally distributed and may thus be more appropriate for some variables. The Pearson coefficients are located on the left side of the diagonal with the Spearman coefficients on the right.

Table 3 – Pearson and Spearman correlations.

Variable	*AFEE*	*LNSAEXP*	*SAEXP*	*SAEXPSQ*	*EC1*	*EC2*	*EC3*	*EC4*	*BIG4*	*AFIS*	*SMALE*	*ACHANGE*	*SIZE*	*LISTED*	*SQRSUB*	*LOSS*	*REC*
AFEE	1	0.00	-0.00	0.00	-0.12*	0.07*	-0.03	0.00	0.22*	0.30*	0.00	0.01	0.61*	0.50*	0.61*	0.10*	0.05*
LNSAEXP	0.06*	1	1.00*	1.00*	-0.27*	-0.76*	0.32*	0.65*	-0.05*	0.00	0.14*	-0.12*	0.10*	-0.07*	0.05*	-0.07*	-0.09*
SAEXP	0.02	0.95*	1	1.00*	-0.27*	-0.76*	0.32*	0.65*	-0.05*	0.00	0.14*	-0.12*	0.10*	-0.07*	0.05*	-0.07*	-0.09*
SAEXPSQ	-0.01	0.87*	0.98*	1	-0.27*	-0.76*	0.32*	0.65*	-0.05*	0.00	0.14*	-0.12*	0.10*	-0.07*	0.05*	-0.07*	-0.09*
EC1	-0.12*	-0.57*	-0.35*	-0.23*	1	-0.12*	-0.15*	-0.07*	-0.16*	-0.04*	-0.01	0.05*	-0.08*	-0.08*	-0.03	0.07*	-0.02
EC2	0.06*	-0.61*	-0.71*	-0.68*	-0.12*	1	-0.67*	-0.33*	0.06*	0.00	-0.01	0.10*	-0.05*	0.11*	0.02	0.02	0.10*
EC3	-0.02	0.37*	0.28*	0.15*	-0.15*	-0.67*	1	-0.42*	0.10*	0.04	-0.12*	-0.05*	0.03	-0.05*	-0.05*	-0.03	-0.05*
EC4	-0.01	0.52*	0.67*	0.75*	-0.07*	-0.33*	-0.42*	1	-0.14*	-0.04	0.18*	-0.08*	0.06*	-0.04*	0.06*	-0.02	-0.05*
BIG4	0.21*	0.03	-0.06*	-0.13*	-0.16*	0.06*	0.10*	-0.14*	1	0.39*	-0.09*	-0.01	0.06*	0.11*	-0.02	0.08*	0.09*
AFIS	0.30*	0.02	-0.00	-0.03	-0.03	0.00	0.03	-0.02	0.29*	1	-0.02	0.01	0.15*	0.22*	0.18*	0.04	0.03
SMALE	-0.01	0.10*	0.14*	0.16*	-0.01	-0.01	-0.12*	0.18*	-0.09*	-0.02	1	-0.04	0.02	-0.01	0.10*	0.01	0.01
ACHANGE	0.01	-0.12*	-0.12*	-0.11*	0.05*	0.10*	-0.05*	-0.08*	-0.01	0.00	-0.04	1	0.05*	0.01	0.04	-0.03	-0.04*
SIZE	0.70*	0.11*	0.10*	0.09*	-0.09*	-0.03	0.02	0.05*	0.08*	0.20*	0.01	0.04	1	0.28*	0.43*	-0.05*	-0.37*
LISTED	0.55*	-0.02	-0.05*	-0.07*	-0.08*	0.11*	-0.05*	-0.04*	0.11*	0.22*	-0.01	0.01	0.36*	1	0.56*	0.00	0.14*
SQRSUB	0.70*	0.07*	0.06*	0.06*	-0.05*	0.01	-0.03	0.05*	0.03	0.22*	0.08*	0.02	0.57*	0.56*	1	0.01	0.03
LOSS	0.070*	-0.09*	-0.08*	-0.07*	0.07*	0.02	-0.03	-0.02	0.08*	0.02	0.01	-0.03	-0.05*	0.00	-0.01	1	0.00
REC	-0.05*	-0.05*	-0.07*	-0.08*	-0.02	0.09*	-0.04*	-0.04*	0.03	-0.03	0.01	-0.04*	-0.35*	0.07*	-0.05*	0.00	1

** Denotes significance at p<0.05*

Note. EC1 = Experience category 0-5 years, EC2 = 6-15 years, EC3 = 16-25 years, and EC4 = 26-40 years

As can be noted from the table, the dependent variable *AFEE* had moderate to strong correlations with several independent variables. These were mostly in line with expectations and prior literature. A strong correlation was observed for *AFEE* with *SIZE* (Pearson coefficient of 0.70), at $p<0.05$. Interestingly, *SQRSUB* had an equally strong correlation (Pearson: 0.70), also significant at $p<0.05$. Thus, size and complexity appear to have a strong relationship with fees, as suggested by the meta-analysis of Hay (2013). A significant ($p<0.05$) and moderate correlation was also noted between the variables *LISTED* and *AFEE* (Pearson: 0.55; Spearman: 0.50), indicating that audit fees tend to be higher for listed companies. A lower, though still significant correlation (0.30 for both Spearman's and Pearson's coefficients) was found for *AFIS*, suggesting that market leaders in an industry tend to fetch higher fees as discussed in chapters **3.1.2** and **3.3.2**. The significant correlations for *BIG4* with *AFEE* (Pearson: 0.21; Spearman 0.22) also indicate that the Big Four may charge higher fees, in line with prior literature.

However, no strong correlations were found between *AFEE* and any of the audit experience variables. Though the Pearson's coefficient for *LNSAEXP* is significant at $p<0.05$, a correlation of 0.06 indicates only a very weak positive relationship. As such, it appears that no strong relationship exists between these two variables in the absence of controls. The non-significant Spearman's coefficient of 0.00 supports this view. *SAEXPSQ*, used in model 2, is not significantly correlated with *AFEE* by either Pearson's or Spearman's coefficient. Interestingly, significant correlations ($p<0.05$) were noted for the experience category dummies *EC1* (Pearson: -0.12; Spearman: -0.12) and *EC2* (Pearson: 0.06; Spearman: 0.07). This indicates that fees are relatively low for the group with 0-5 years of experience (*EC1*), and higher for the group with 6-15 years (*EC2*) compared with all other groups – a pattern not evident from Figure 6, in which the latter group also appears to obtain relatively low fees. This may suggest that experience beyond 15 years since authorization is not associated with higher fees, as the correlations for *EC3* and *EC4* with *AFEE* were not significant. Despite this pattern, *SIZE* and *SQRSUB* seem to grow with increasing years of experience, as indicated by the correlations of these variables with *EC1* and *EC4*. The Pearson correlation of -0.05 for *EC1* and *SQRSUBS* was significant, as was the coefficient of 0.05 for *EC4*. For *SIZE*, significant Pearson correlations of -0.09 and 0.05 were noted with *EC1* and *EC4*, respectively. Thus, more experienced auditors tend to audit larger and more complex clients.

As for the relationships among the independent variables, most variables had pairwise correlation coefficients of <|0.4|, and of these most were less than |0.2|. However, the significant ($p<0.05$) correlations between *SIZE* and *SQRSUB* (Pearson: 0.57; Spearman 0.43) as well as *SQRSUB* and *LISTED* (Pearson: 0.56; Spearman: 0.56) were moderate. Additionally, the experience variables *SAEXP* and *SAEXPSQ* had a Pearson correlation of 0.98 (significant at $p<0.05$) indicating a very strong linear relationship between these two variables. Though the rest of the variables had mostly weak correlations, the correlations noted above may indicate multicollinearity issues. A further examination of the VIFs (variance inflation factors) of the variables was therefore conducted to see whether these may present an issue for the regressions. The mean VIF for all the variables in the full sample was 1.44 and 1.43 in the Big Four sample. Most variables had VIF values lower than 1.5, and no VIFs above 3.07 were observed, except for *SAEXP* and *SAEXPSQ*, which had VIFs of 27.44 and 27.79, respectively. These figures for *SAEXP* and *SAEXPSQ* are very high, and their regression coefficients will therefore be far less reliable and less likely to be significant in model 2 due to higher standard errors. Beyond these two variables, however, it can be concluded that the regression estimates should not be impaired by multicollinearity.

In sum, the preliminary analyses indicate that audit fees do not grow monotonically with experience. However, some patterns still emerged from the data. Effectively controlling for the many different factors that are known to be associated with audit fees is therefore essential in order to obtain accurate and insightful results. Given the patterns discussed above, *SAEXPCAT*, used in the third model (see equation 3), is divided in to four groups: (1) 0-5 years, (2) 6-15 years, (3) 16-25 years, and (4) 26-40 years to capture the effects of the different stages in an auditor's career. The first category seeks address the question of whether auditors obtain lower fees during the very early years of their career since KHT authorization. The second group addresses the stage at which auditors are expected to aggressively establish themselves in the market. The correlation between the dummy for this group and *AFEE* in Table 3 also indicates that fees may already be highest at this point. The third group is expected to consist of the prime years for most auditors in that they are already well established in the market but not yet seeking to slow down in preparation for retirement. The final grouping consists of auditors in the twilight of their careers, which could be associated with higher fees as the auditors possesses the most experience by then, or alternatively, lower fees if a slowing down effect occurs near retirement.

5.2 REGRESSION RESULTS AND ANALYSIS

5.2.1 Regression Results and the Principles of their Interpretation

The regression results were obtained through OLS regression using the statistics software STATA. The program computed the regression coefficients by minimizing the sum of the squared residuals. Tables 4 and 5 report the results for the three regression models for the full sample and the Big Four subsample, respectively.

The regression output displays the regression coefficients for the intercept and all the independent variables, as well as their t-statistics, standard errors and p-values. The regression coefficients measure the slope of the regression line obtained through the OLS method, indicating how much and in what direction the dependent variable changes in line with the independent variable in question (Wisniewski 2009, pp. 362-363). The t-values in the tables display the coefficient's distance from the hypothesized population value as the ratio of the observed difference divided by the parameter's standard error (Ibid. 2009, p. 363). If the significance level for a test is set at $\alpha=0.05$, and the probability of acquiring a given t-value under the null hypothesis is equal to or less than 5%, that is, $p \leq 0.05$, the results are generally said to be statistically significant, though other thresholds are also used.

The Adjusted R^2 value displayed at the bottom of the tables is the coefficient of determination, which indicates the goodness of fit of the model, and it obtains a value between 0 and 1 (Wisniewski 2009, p. 378). This value indicates the proportion of variation in the observed values of the dependent variable *AFEE* that is explained by the independent variables of the model. Thus, the closer the value is to one, the larger the proportion of variation explained by the model. Generally, a value of around 0.5 or higher can be considered a good fit, as the regression then explains at least half of the observed variation (Waters 1997, p. 249), though as Hay (2013) observed in his meta-analysis of audit fee research, the models used in this literature tend to obtain values as high as 0.7 or more. An F-test is also conducted in Stata to assess the overall significance of the equations.

Table 4 – Regression Results for the Full Sample.

	Model 1				Model 2				Model 3			
Variable	Coefficient	t-value	Std error	p-value	Coefficient	t-value	Std error	p-value	Coefficient	t-value	Std error	p-value
Intercept	1.927	7.10	0.271	0.000	1.829	6.78	0.270	0.000	1.960	7.35	0.267	0.000
LNSAEXP	-0.049	-1.62	0.031	0.105								
SAEXP					0.004	0.45	0.010	0.651				
SAEXPSQ					-0.000	-1.00	0.000	0.315				
EC1									-0.292	-3.38	0.086	0.001
EC2									0.000	(-)	(-)	(-)
EC3									-0.126	-4.24	0.030	0.000
EC4									-0.123	-3.11	0.039	0.002
BIG4	0.338	6.36	0.053	0.000	0.308	5.45	0.057	0.000	0.309	5.72	0.054	0.000
AFIS	0.284	4.51	0.063	0.000	0.286	4.55	0.063	0.000	0.294	4.69	0.063	0.000
SMALE	-0.068	-2.06	0.033	0.040	-0.059	-1.77	0.033	0.077	-0.077	-2.32	0.033	0.020
ACHANGE	-0.002	-0.06	0.036	0.949	-0.006	-0.18	0.036	0.860	-0.008	-0.21	0.036	0.835
SIZE	0.473	35.24	0.013	0.000	0.473	35.23	0.013	0.000	0.470	35.16	0.013	0.000
LISTED	0.386	8.75	0.044	0.000	0.380	8.60	0.044	0.000	0.367	8.32	0.044	0.000
SQRSUB	0.138	19.58	0.007	0.000	0.138	19.67	0.007	0.000	0.139	19.80	0.007	0.000
LOSS	0.224	7.15	0.031	0.000	0.224	7.16	0.031	0.000	0.229	7.34	0.031	0.000
REC	0.885	8.53	0.104	0.000	0.868	8.34	0.104	0.000	0.841	8.11	0.104	0.000
	N = 2389				*N* = 2389				*N* = 2389			
	F-value = 113.91				*F*-value = 112.57				*F*-value = 112.11			
	Adj. *R2* = 0.7680				Adj. *R2* = 0.7684				Adj. *R2* = 0.7701			

Note 1. EC = SAEXPCAT; EC1 = 0-5 years, EC2 = 6-15 years, EC3 = 16-25 years, and EC4 = 26-40 years.

Note 2. Industry dummies and year dummies included in the models.

Note 3. Two-tailed t-tests for all variables.

Table 5 – Regression Results for the Big Four Subsample.

	Model 1				Model 2				Model 3			
Variable	Coefficient	t-value	Std error	p-value	Coefficient	t-value	Std error	p-value	Coefficient	t-value	Std error	p-value
Intercept	2.094	7.44	0.282	0.000	1.934	6.87	0.281	0.000	2.000	7.30	0.274	0.000
LNSAEXP	-0.092	-2.72	0.034	0.007								
SAEXP					-0.001	-0.07	0.011	0.945				
SAEXPSQ					-0.000	-0.64	0.000	0.524				
EC1									-0.277	-2.62	0.106	0.009
EC2									0.000	(-)	(-)	(-)
EC3									-0.138	-4.56	0.030	0.000
EC4									-0.143	-3.45	0.042	0.001
AFIS	0.281	4.46	0.063	0.000	0.283	4.50	0.063	0.000	0.290	4.62	0.063	0.000
SMALE	-0.070	-2.08	0.033	0.037	-0.061	-1.80	0.034	0.073	-0.082	-2.42	0.034	0.016
ACHANGE	0.006	0.16	0.038	0.873	0.002	0.06	0.038	0.953	0.004	0.10	0.038	0.917
SIZE	0.488	35.43	0.014	0.000	0.487	35.24	0.014	0.000	0.485	35.25	0.014	0.000
LISTED	0.398	8.80	0.045	0.000	0.393	8.67	0.045	0.000	0.382	8.43	0.045	0.000
SQRSUB	0.131	18.24	0.007	0.000	0.132	18.33	0.007	0.000	0.132	18.40	0.007	0.000
LOSS	0.242	7.56	0.032	0.000	0.242	7.59	0.032	0.000	0.245	7.72	0.032	0.000
REC	1.008	9.07	0.111	0.000	0.993	8.92	0.111	0.000	0.964	8.67	0.111	0.000
	N = 2201 F-value = 109.46 Adj. $R2$ = 0.7702				N = 2201 F-value = 108.20 Adj. $R2$ = 0.7707				N = 2201 F-value = 107.48 Adj. $R2$ = 0.7721			

Note 1. EC = SAEXPCAT; EC1 = 0-5 years, EC2 = 6-15 years, EC3 = 16-25 years, and EC4 = 26-40 years.

Note 2. Industry dummies and year dummies included in the models.

Note 3. Two-tailed t-tests for all variables.

5.2.2 Regression Results

The interpretation of regression results entails assessing the overall fit of the model and the individual regression coefficients of the independent variables. Both the variables of interest (audit fees, in this case) and the control variables are assessed, as the as well as the control variables (Wisniewski 2009, pp. 377-382). The interpretation of the results reported in Tables 4 and 5 is begun by first noting any marked deviations from expectations within the individual regression coefficients. Such deviations may imply faulty data or a mistaken understanding of the relationship of these variables with the dependent variable (Ibid 2009, p. 377). Afterwards, the overall fit of the model is assessed, followed by a more detailed analysis of the results concerning the experience variables as well as other findings of interest.

In line with predictions, the three models obtained positive and statistically significant coefficients for most control variables in both samples at $p<0.01$ (see Tables 4 and 5 above). These variables therefore make statistically significant contributions to the models. However, before moving onto the test variables, it must be noted that one control dummy variable did not obtain significant coefficients (at $p<0.05$) in any of the three models in either of the two samples. This variable was the dummy variable of whether the audit partner and/ or firm was different from the previous year (*ACHANGE)*. The non-significant coefficients are somewhat puzzling at first sight. The literature on audit fee low balling (e.g. Fung et al. 2012; Huang et al. 2015; Kwon et al. 2014) suggests that fees are discounted during the first year of an engagement, at least in the case of audit firm rotation. Since audit partner rotations are more common in the data set than are firm rotations, it may be the case that these partner rotations diluted the potential effect of audit firm rotation and hence no significant result was obtained. However, dropping this variable from the models does not substantially alter the results. The interpretation therefore proceeds with an assessment of the overall fit of the models.

A statistical examination reveals a relatively close fit with the data for all three regression models. All models obtained high adjusted R^2 values for both samples ranging from 76.8% to 77.0% in the full sample and slightly higher figures of 77.0% to 77.2% in the Big Four subsample. The *F*-tests indicate that all models were significant at $p<0.001$. The models therefore explained nearly 80% of the variation in the audit fees. The results obtained here thus compare well with the standard of an adjusted R^2 of 70% or higher in audit fee research

reported by Hay (2013). Model three, which utilized the experience category dummies (*SAEXPCAT)*, had the highest explanatory power in both samples, suggesting that this definition of experience best represents the underlying relationship among the three models.

The results obtained for the test variables show marked differences between the three models in the full sample. Model 1 obtained a non-significant negative coefficient of -0.049 for *LNSAEXP*, opposite of what was expected. This result does not indicate a significant positive association, and it is therefore inconsistent with $\mathbf{H_1}$. Given the literature covered in the previous chapters, this result appears illogical, and it cannot therefore be accepted at face value. The analysis continues with models 2 and 3, which may provide further insight into this finding.

Model 2 also found non-significant coefficients on its experience variables *SAEXP* (0.004) and *SAEXPSQ* (-0.0003). The signs of these coefficients indicate a downwards opening parabola, meaning that as experience increases, the fees first rise and then begin to fall after reaching the highest point. However, the coefficients were non-significant (p=0.651 for *SAEXP,* and p=0.315 for *SAEXPSQ*), so this result cannot be taken to indicate such a relationship. As discussed in chapter **5.2.1.**, this may be due to the high correlation (Pearson: 0.98) observed between these two experience variables, rather than due to such a relationship not existing. This multicollinearity issue increases the standard errors of the coefficients, with the effect of decreased t-values and a corresponding drop in the significance of the results.

Model 3 used categorized experience dummies where auditors were categorized into the following groups by levels of experience: (1) 0-5 years, (2) 6-15 years, (3) 16-25 years, and (4) 26-40 years. Group 2 was used as the reference group, and the coefficients for groups 1, 2, and 4 indicate the effect relative to this reference group. All three dummies obtained significant coefficients at $p<0.01$. Interestingly, all of these coefficients had a negative sign. Fees were thus highest for the group with 6-15 years of experience, and lower for both less experienced (0-5 years) as well as more experienced auditors (16-40 years). The differences in fees between these groups can be calculated in percentages based on the regression coefficients of the *SAEXPCAT* dummy variables (*EC1-EC4*). The fees for groups 1, 3, and 4 were -25.3%, -11.8%, and -11.5% lower, respectively, compared with group 2. In other words, fees are this much lower for each group relative to the reference group, when controlling for other variables. This result is also in line with what was observed in the

analysis of correlations in chapter **5.1.3**, where this second experience group *(EC2*) was the only one that had a significant positive correlation (Pearson 0.06; Spearman: 0.07) with *AFEE*.

Further regressions with different reference groups also display the pattern described above, with significantly ($p<0.01$) lower fees for the other groups relative to group 2. No significant difference was found between groups 3 and 4, indicating that there is no drastic drop-off in fees for auditors approaching retirement. These results are inconsistent with $\mathbf{H_1}$, as were the results for model 1. The results for model 3 suggest that inexperienced auditors charge lower fees, and that fees peak within 15 years of authorization. Thereafter fees fall below these peak levels, but do not appear to fall further near retirement, as no significant difference was noted between *EC3* and *EC4*. This may indicate that the auditors do not in fact have reduced incentives towards the end of their careers.

The results for model 3 show that the relationship between experience and fees is non-linear in the full sample. This also explains the negative coefficients found on *LNSAEXP* with model 1, as the logarithmic form of *LNSAEXP* clearly does not fit the data in the way it was originally expected. The results for model 3 suggest that the quadratic definition experience utilized in model 2 might have also fit the data, though this could not be observed, likely due to high multicollinearity between *SAEXP* and *SAEXPSQ*.

The results for the Big Four subsample were similar to those obtained from the full sample. As in the full sample, model 1 produced a negative coefficient of -0.092 for *LNSAEXP,* significant at $p<0.01$. This indicates that no positive relationship between experience and fees exists in the Big Four audit firms, inconsistent with $\mathbf{H_1}$. The coefficients on *SAEXP* and *SAEXPSQ* in the second model were non-significant ($p=0.945$ and $p=0.524$, respectively), as they were in the full sample. Moreover, the results for the different categories of audit experience utilized in model 3 followed the same pattern as in the full sample, and all groups had significant coefficients at $p<0.01$. Here again the most inexperienced and the most experienced auditors showed negative coefficients relative to the reference group of 6-15 years. The fees for groups 1, 3, and 4 were -23.5%, -12.9%, and -13.4% lower, respectively, compared with the reference group. The relationship between experience and fees appears therefore to be similar in both samples. Thus, the results of models 1 and 3 applied to the Big Four subsample are also inconsistent with $\mathbf{H_1}$, while model 2 failed to find the proposed parabolic relationship.

More in line with expectations, a significant positive coefficient was found on *AFIS* ($p<0.001$) for both samples with each of the three models. A higher market share of an audit firm in a given industry is therefore significantly associated with higher audit fees in the samples. Though this measure deals with industry specialization on the audit firm level, it has been argued that industry-specialization ultimately lies in individual auditors (see chapter **3.1.2**). It is possible that a significant part of the marketable skills that an auditor acquires through years of work experience relates to industry-specific knowledge rather than task-specific or general auditing knowledge. However, an effect on fees of such experience at the individual audit signee's level is unlikely to be transmitted through the firm-level variable to such a degree that it would dilute the results for the experience variables. If the potential fee effect of experience were, however, mediated by industry specialization at the firm-level, these results would suggest that it is not overall experience *per se* that clients are willing to pay higher fees for.

Interestingly, the coefficients on *SMALE* are negative and significant for models 1 and 3 in both samples ($p<0.05$). This is in line with the findings of Ittonen and Peni (2012) and Harides et al. (2015), who also found significant premiums for female auditors. However, research on this issue remains scarce. Moreover, the coefficients on *SMALE* were non-significant in both samples with model 2 in this study.

5.2.3 Discussion

The results obtained here concerning audit experience support those of Hardies et al. (2015), though they contrast with the results of Cahan and Sun (2015) from the Chinese audit market and Niemi's (2004) evidence from the Finnish audit market. The differences compared with Cahan and Sun (2015), however, may be due in part to the very different cultural and regulatory context of China, which could play into the determination of fees. Niemi (2004) also found a positive association in the Finnish audit market, though here the focus was on smaller firms and his sample included mostly HT auditors (the lower tier of authorization). Most of these auditors were self-employed. He used survey data on the more direct measure of hourly billing rates of auditors, as opposed to total fees from a given engagement. These differences in design may well have contributed decisively to the different results obtained therein.

The results of these regressions against a positive association between experience and fees were robust to the different functional specifications of the experience variables in models 1 and 3. Model 1 did not find a significant positive coefficient on *LNSAEXP* in either sample. Model 3, in turn, suggested a different type of relationship where fees initially rise, followed by a decrease after the early to middle years of an auditor's career. This was the case in both samples. Model 2 failed to establish a parabolic relationship between experience and fees, likely due to high multicollinearity, and its results therefore neither support nor refute those of models 1 and 3. Given the weight of evidence obtained against the hypothesis $\mathbf{H_1}$, the research question is thus repeated for reassessment:

> **RQ_1: Is the overall audit experience of authorized public accountants associated with higher audit fees in the audit market of large Finnish companies?**

The results suggest that an individual auditor's audit experience is indeed associated with fees in the audits of large Finnish companies. However, the evidence does not point to a relationship where audit fees grow constantly with experience. Rather, the results suggest a non-linear relationship, where fees tend to start out low in the early years after authorization, followed by a rise to peak levels roughly in the middle or early to middle years of the auditors' careers. The fees then fall below peak levels, but do not drop further in the very late years of an auditor's career. $\mathbf{H_1}$ is therefore rejected.

However, some speculations may be made about the reasons behind these patterns. The rationale behind the hypothesis was that auditors tend to accumulate valuable experience as a result of working on many different clients over several years. This could then facilitate the acquisition of other types of knowledge (see Figure 3 in chapter **3.2**). This was then expected to lead to higher audit quality in the form of actual monitor strength, as they auditor utilizes their expertise to perform better on specific audit tasks. Higher audit quality in turn was expected to lead to higher audit fees via promoting long-term stability in the financial markets as accounting scandals become less frequent and as the auditor's reputation is enhanced (see Figure 2 in chapter **2.4.1**). The results obtained here aren't in fact wholly inconsistent with these propositions. Rather, it seems that the intuition regarding the relationship between experience and fees only holds up to a certain point.

It may be the case that auditors accumulate experience that translates into higher quality and audit fees in the early years of their careers, but that they quickly begin to face severe diminishing returns, and at some point perhaps stop learning altogether. As discussed in

chapter **3.1.1** it was concluded that behavioral research, overall, suggests more positive connections between experience and fees than negative connections. It was also noted that the effects are likely to be indirect, that is, facilitated by more specific levels of knowledge. Behavioral research suggests that experience may lead to, for instance, weaker professional skepticism among experienced auditors (Shaub & Lawrence 2002, cited in Nelson 2009), better decision making when faced with high-complexity tasks (Abdolmohammadi & Wright 1987), and more integrated, though also more altered, mental representations of information (Moeckel 1990).

Based on the results obtained in this study, it appears that whatever the pathways mediating this relationship may be, they do not as a whole contribute significantly to higher audit fees in the latter half of an auditor's career. This is the case when other factors are controlled, though the portfolios of more experienced auditors do generally appear to contain larger and more complex clients. This is partly consistent with Bonner and Lewis (1990) and Ashton (1991) who emphasized the role of more specific types of knowledge over expertise. Yet, as Libby and Tan (1994) suggested, these results also support to some degree the notion that experience facilitates the acquisition of knowledge, as indicated by the higher fees in the group with 6-15 years of experience compared to those with up to 5 years of experience. It should be noted that the results also cannot be taken to indicate that these patterns in fees reflect the monitoring strength of auditors, as reputational and other factors may play into the pricing of the engagements. The design of this study did not allow for the disentanglement of these other factors from monitoring strength. Further research could improve upon the design of this study by also investigating the associations between experience and measures of monitoring strength as well as market perceptions of quality.

6. SUMMARY AND CONCLUSIONS

This study investigated whether a positive relationship exists between audit experience and audit fees in the audit market of large Finnish companies. In doing so, it sought to extend the scarce literature on the effects of individual auditors' personal characteristics on audit quality and fees.

Chapter **2** provided an overview of what the objectives of an audit are, what stages comprise an audit as a process, and what constitutes audit quality. It was concluded that audit experience may influence the audit process in many ways which could lead to differential quality between different audit engagements, even within the same audit firm and with the resultant audit opinion held constant. It was also noted that audit quality can be viewed based on the markets' assessments of an auditor's competence and independence, in line with DeAngelo's (1981a) view. Moreover, a distinction can also be made between these market assessments and the actual monitoring strength of the auditor, as noted by Watkins et al. (2004). Experience was proposed to potentially affect both monitoring strength as well as perceptions of quality.

Chapter **3** provided an provided an overview of behavioral research and other literature linked to audit experience and examined the specific ways in which experience may come to contribute to audit quality and thereby fees. The literature review of behavioral research indicated that, overall, audit experience might be more likely to contribute positively toward quality and fees, though not all of these studies pointed in this direction.

Additionally, the literature covered in Chapter **3** suggests that experience has an indirect link with fees, and that consequently more detailed measures of specific types of knowledge may be preferred in most research. Yet, it was also proposed that experience does facilitate the acquisition of these types of knowledge, in line with the arguments of Marchant (1990) and Libby and Tan (1994). Thus, overall experience could be used as a proxy for these types of knowledge. Research on auditor tenure and client or industry specialization on both the firm-level as well as the level of an individual audit signee was also summarized. It was concluded that both strains of research seem to indicate a positive relationship between these factors and audit quality as well as fees, though here too the evidence is not unequivocal. Finally, the construction of audit fee models was summarized, and it was noted that the most common variables in audit fee models relate to the client's size, complexity, and risk, as well as some

characteristics of the auditor. These served as the basis of the empirical investigation conducted in chapters **4** and **5**.

The results obtained in this study suggest that overall audit fees do not have a relationship of monotonic growth with audit experience, leading to the rejection of the hypothesis of this study. This result was robust to different definitions of the test variables in both samples, with neither model 1 nor model 3 finding support for monotonic growth in fees with increasing experience. Model 2 failed to establish a parabolic relationship, likely due to multicollinearity issues. The results contrast with two other studies (Cahan & Sun 2015; Niemi 2004) that have examined this relationship, though they are consistent with the findings of Hardies et al. (2015). However, these differences compared with Cahan and Sun (2015) and Niemi (2004) may very well stem from differences in study design and their contexts, as the former study was conducted in the Chinese audit market and the latter concerned chiefly Finnish HT auditors, who tend to audit smaller clients. The sample sizes used in this study (2389 for the full sample; 2201 for the Big Four subsample) can be considered quite large compared to the standards in the audit fee literature, thus contributing to the reliability of these results.

The relationship between experience and fees that was observed here appears as follows: fees to start out low, rise to their peak by the middle point of an auditor's career and then drop to a lower level for the latter half of it, but without a drastic drop-off right before retirement. This may suggest that the compensation schemes of the audit firms in Finland are effective in preventing auditors from feeling compelled to slow down dramatically at the end of their careers. The evidence obtained here suggests that experience plays some part in the acquisition of marketable knowledge, in line with Marchant (1990) as well as Libby and Tan (1994). Yet, the results are also consistent with Bonner and Lewis (1990), who argued that the effects of experience on fees relate mostly to more specific levels of knowledge.

The results also imply that, when dealing with measures of audit experience in relation to fees, simple linear definitions are unlikely to suffice. Additionally, overall experience may have to be broken down further to specific types of knowledge to gain more detailed insight into the different pathways through which it may influence fees. Sufficiently large sample sizes are warranted to tease out the fine distinctions between these connections at different stages of an auditor's career. Overall, the results suggest that the personal characteristics of auditors are relevant in audit fee studies and should be included in fee models where possible.

The control variables used in the models mostly obtained signs consistent with prior research for both samples. However, the auditor change dummy (*ACHANGE*) did not obtain a significant coefficient in either sample, likely due to definitional issues. This did not substantially affect the results for the rest of the models. Interestingly, a female price premium was also noted as a significant negative coefficient on *SMALE* with models 1 and 3, in line with the findings of Ittonen and Peni (2012) and Hardies et al. (2015).

This study is subject to several limitations. First, the evidence cannot substantiate claims made about a causation between audit experience and higher auditor monitoring strength. Though fees are often used as a proxy measure for quality (DeFond & Zhang 2014; Francis 2004), experience could be associated with fees through reputation. The design of this study did not allow for the disentanglement of these. Second, the study design also did not permit separating in detail the various types of knowledge an auditor may acquire through experience. Such distinctions could provide valuable insight into how experience affects fees on a more specific level. Third, despite the reasonable sample sizes utilized in this study, the samples may not have been quite large enough to fully capture the finer distinctions between the effects of experience among different groups. Larger samples could have allowed a more granular breakdown of the experience categories. Fourth, this study concerned the Finnish audit market of large companies, and the results cannot therefore be directly extrapolated to other contexts. This is particularly so given that the evidence reported by Cahan and Sun (2015) and Niemi (2004) contrast with this study.

This study revealed several potential paths for future research. First, as noted by Cahan and Sun (2015) and Gul et al. (2013), the personal characteristics of auditors have received relatively little attention in auditing research. Yet, these results suggest that the individual characteristics of auditors are relevant for such studies, and it is therefore proposed that more research is conducted in this area. For instance, studies with different definitions of experience can shed further light into its relationship with audit quality and fees. The female audit fee premium noted here is also worthy of further research. Studies into audit quality, as distinguished between the reputational part and monitoring strength, could establish a better understanding of whether auditors are able to translate their work experience into higher quality and fees. Additionally, new behavioral studies could be conducted to bring that strain of research up to date with the changes in the auditing profession and to equip researchers with detailed insights into the impacts of experience on audit work.

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